

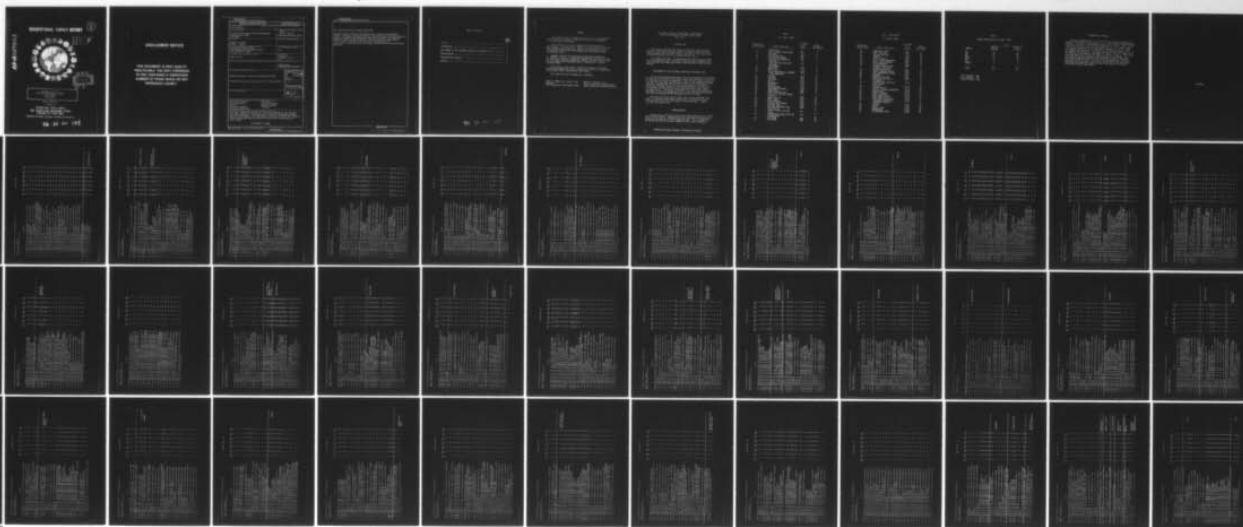
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AIR FORCE OCCUPATIONAL MEASUREMENT CENTER LACKLAND A--ETC F/G 5/9  
ELECTRONIC PRINCIPLES PRECISION PHOTOGRAPHIC SYSTEMS CAREER LAD--ETC(U)  
MAY 77 T J O'CONNOR, W F KASPER  
AFPT-90-404-222

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# OCCUPATIONAL SURVEY REPORT

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ELECTRONIC PRINCIPLES  
PRECISION PHOTOGRAPHIC SYSTEMS  
CAREER LADDER  
AFSC 404X0

AFPT 90-404-222

15 MAY 1977

OCCUPATIONAL SURVEY BRANCH  
USAF OCCUPATIONAL MEASUREMENT CENTER  
LACKLAND AFB TEXAS 78236

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
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18. SUPPLEMENTARY NOTES		
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Electronic principles      Electronics Basic electronics      Air Force training Avionics      Teaching methods Electronic equipment      Training Electronic technicians		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		
This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned to Precision Photographic Systems Specialty (AFSC 404X0). The report gives a detailed listing of the technical tasks and knowledge needed to perform the jobs within the specialty or career ladder.		
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This specialty has the following functions:

Prepares for use, performs operational checks, inspects, troubleshoots, repairs, overhauls, calibrates, modifies, and tests ground electronic precision imagery, and audiovisual systems and associated electronic test equipment. Maintains inspection and maintenance records and completes maintenance forms. Prepares relocation facilities for transportation and installation. Supervises precision imagery and audiovisual media maintenance personnel.

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## PREFACE

This report presents a summary of the results of a detailed Air Force Electronic Principles Survey of the Precision Photographic Systems Specialty, AFSC 404X0.

The Electronic Principles Inventory (EPI) was developed by Major Thomas J. O'Connor and Mr. Hendrick W. Ruck and the survey data were analyzed by Major Walter F. Kasper. All are members of the Occupational Survey Branch, USAF Occupational Measurement Center, Lackland AFB, Texas.

Computer programs for analyzing the data were designed by Dr. Raymond E. Christal, Occupational and Manpower Research Division, Air Force Human Resources Laboratory (AFHRL), and were written by the Project Analysis and Programming Branch, Computational Sciences Division, AFHRL.

Distribution of this report is made upon request to the USAF Occupational Measurement Center, attention of the Chief, Occupational Survey Branch (OMY), Lackland AFB, Texas 78236.

This report has been reviewed and is approved.

JAMES A. TURNER, JR., Colonel, USAF  
Commander  
USAF Occupational Measurement Center

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Chief, Occupational Survey Branch  
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ELECTRONIC PRINCIPLES OCCUPATIONAL SURVEY REPORT  
PRECISION PHOTOGRAPHIC SYSTEMS CAREER LADDER  
AFSC 404X0

INTRODUCTION

This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned to Precision Photographic Systems Specialty (AFSC 404X0). The data for this report were collected during the period July through October 1976.

This report describes: (1) development and administration of the survey instrument; and (2) electronic principles used by DAFSC 5-skill level personnel both CONUS and overseas and assigned to selected major commands.

DEVELOPMENT OF THE ELECTRONIC PRINCIPLES INVENTORY (EPI)

The EPI was developed by personnel from the Occupational Survey Branch who were well qualified in theoretical physics and electronics, as well as in task analysis and survey development. Over 300 maintenance personnel from SAC, TAC, ADC, MAC, and AFCS participated in the development of the inventory. Representing the five ATC training centers, electronics experts who averaged 12 years of maintenance experience and four years of electronic principles instruction experience spent several weeks refining the EPI. In addition, personnel at the Electrical Engineering Department of the USAF Academy and the Air Force Human Resources Laboratory were consulted during the development of the inventory.

The final version of the EPI used in this survey contained 1,257 items in 62 subject matter areas covering all electronic principles training given at the five ATC technical training centers. Table 1 lists the 62 subject areas.

ADMINISTRATION

The Electronic Principles Inventory was administered by mail to AFSC 404X0 airmen worldwide. Responses from 252 individuals represented 68 percent of the total of all AFSC 404X0 personnel. Table 2 shows the percentage distribution by major command of the survey incumbents.



TABLE 1  
EPI SUBJECT AREAS

<u>SEQUENCE OF SUBJECT AREAS</u>	<u>SUBJECT AREA TITLE</u>	<u>BEGINNING ITEM NUMBER</u>	<u>GPSUM PAGE NUMBER</u>
1	MATHEMATICS	A1	2
2	DIRECT CURRENT AND VOLTAGE	A15	2
3	RESISTANCE	A24	2
4	MULTIMETER USES	B52	3
5	ALTERNATING CURRENT	B61	4
6	INDUCTORS AND INDUCTIVE REACTANCE	B67	4
7	CAPACITORS AND CAPACITIVE REACTANCE	C92	5
8	TRANSFORMERS	C128	6
9	MAGNETISM	C171	7
10	RCL CIRCUITS	D185	8
11	SERIES AND PARALLEL RESONANCE (TIME CONSTANTS)	D229	9
12	FILTERS	D239	10
13	COUPLING	E261	11
14	SOLDERING	E273	12
15	RELAYS	E294	12
16	MICROPHONES	F314	13
17	SPEAKERS	F327	13
18	OSCILLOSCOPES	F342	13
19	SEMICONDUCTOR DIODES	G354	14
20	TRANSISTORS	G404	16
21	TRANSISTOR AMPLIFIERS	G428	17
22	SOLID-STATE SPECIAL PURPOSE DEVICES	H477	19
23	POWER SUPPLIES	H483	19
24	OSCILLATORS	H512	20
25	MULTIVIBRATORS	I539	21
26	LIMITERS AND CLAMPERS	I555	21
27	ELECTRON TUBES	I565	21
28	ELECTRON TUBE AMPLIFIERS AND CIRCUITS	J609	23
29	SPECIAL PURPOSE ELECTRON TUBES	J616	23
30	HETERODYNING, MODULATION, AND DEMODULATION	J632	24
31	AM SYSTEMS	K638	24
32	FM SYSTEMS	K666	25

TABLE 1 (CONTINUED)

## EPI SUBJECT AREAS

<u>SEQUENCE OF SUBJECT AREAS</u>	<u>SUBJECT AREA TITLE</u>	<u>BEGINNING ITEM NUMBER-</u>	<u>GPSUM PAGE NUMBER</u>
33	NUMBERING SYSTEMS	K685	25
34	LOGIC FUNCTIONS	L695	26
35	BOOLEAN EQUATIONS	L708	26
36	COUNTERS	L733	27
37	TIMING CIRCUITS	M757	28
38	USE OF SIGNAL GENERATORS	M769	28
39	MOTORS AND GENERATORS	M779	29
40	METER MOVEMENTS	N808	29
41	SATURABLE REACTORS AND MAGNETIC AMPLIFIERS	N818	30
42	WAVESHAPING CIRCUITS	N834	30
43	SINGLE SIDEBAND SYSTEMS	O845	31
44	PULSE MODULATION SYSTEMS	O875	32
45	ANTENNAS	O914	33
46	TRANSMISSION LINES	P953	34
47	WAVEGUIDES AND CAVITY RESONATORS	P984	36
48	MICROWAVE AMPLIFIERS AND OSCILLATORS	P1034	37
49	REGISTERS	Q1110	40
50	STORAGE DEVICES	Q1117	40
51	DIGITAL TO ANALOG CONVERTERS	Q1126	40
52	PHANTASTRONS	Q1140	41
53	SCHMITT TRIGGERS	R1141	41
54	CABLE FABRICATION	R1144	41
55	INPUT/OUTPUT DEVICES	S1146	41
56	PHOTO SENSITIVE DEVICES	S1149	41
57	SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)	S1150	41
58	INFRARED	T1159	42
59	LASERS	T1186	42
60	DISPLAY TUBES	T1220	43
61	PROGRAMMING	U1234	44
62	DB AND POWER RATIOS	U1255	44

TABLE 2  
COMMAND REPRESENTATION OF SURVEY SAMPLE

<u>COMMAND</u>	404X0	
	<u>PERCENT ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>
TAC	29	31
SAC	19	20
MAC	17	20
USAFE	15	12
ATC	7	6
AFSC	4	4
OTHERS	9	7
<hr/>		
TOTAL	100	100

Total Assigned - 369  
Total Sampled - 252  
Percent Sampled - 68%

## PRESENTATION OF RESULTS

Personnel responded "yes" or "no" to the 1,257 electronic principles questions as related to their present job. A Group Summary (GPSUM) computer printout is provided in the Appendix portion of this report. Page 1 of the GPSUM lists the seven selected groups identified for this report. Pages 2-44 show the percentage of the incumbents responding to the EPI items. The computer program results display the percent members answering "yes" to the subject area questions. The reader can locate a specific subject area by referring to the Appendix page number as listed in Table 1. For example, the Transformers area results are given on page 6 of the GPSUM. The percentage of survey respondents indicating use of specific electronic principles ranged from high in areas such as Resistance (pp. 3-4) and Soldering (p. 12) to low in areas such as AM and FM Systems (pp. 24-25). Additional AFSC 404X0 data can be obtained upon request to the Chief, Occupational Survey Branch (OMY).



APPENDIX

TABULATION OF PERCENT RESPONDING YES TO ITEMS BY SELECTED GROUPS  
IN THE 404X0 CAREER FIELD.

REPORTS ON THE FOLLOWING GROUPS WERE REQUESTED

GROUP IDENTITY =	SPC003	ALL AIRMEN, DAFSC 40450 ✓	CONTAINING	181 MEMBERS.
GROUP IDENTITY =	SPC007	ALL DAFSC 40450 AIRMEN STATIONED INSIDE CONUS	CONTAINING	130 MEMBERS.
GROUP IDENTITY =	SPC008	ALL DAFSC 40450 AIRMEN STATIONED OUTSIDE CONUS	CONTAINING	36 MEMBERS.
GROUP IDENTITY =	SPC009	ALL AIRMEN, DAFSC 40450 , IN TAC	CONTAINING	56 MEMBERS.
GROUP IDENTITY =	SPC010	ALL AIRMEN, DAFSC 40450 , IN MAC	CONTAINING	37 MEMBERS.
GROUP IDENTITY =	SPC011	ALL AIRMEN, DAFSC 40450 , IN SAC	CONTAINING	36 MEMBERS.
GROUP IDENTITY =	SPC012	ALL AIRMEN, DAFSC 40450 , IN USAF	CONTAINING	21 MEMBERS.

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

0Y-TSK

	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012	
A 1 A1-01 DO YOU USE AN INSTRUMENT, SUCH AS METER OR AN OSCILLOSCOPE, IN WHICH IT IS NECESSARY TO AMPLIFY OR	51	55	39	52	59	47	43	MATHEMATICS
A 2 A1-02 DO YOU USE A PUBLICATION, SUCH AS A TECHNICAL ORDER OR MAINTENANCE MANUAL, IN WHICH IT IS NECESSARY	26	28	19	34	22	25	14	
A 3 A1-03 DO YOU REARRANGE AND SOLVE FORMULAS OR EQUATIONS.	17	20	8	18	22	11	5	
A 4 A1-04 DO YOU FIND THE SQUARE ROOT OF A QUANTITY.	4	5	3	2	11	3	5	
A 5 A1-05 DO YOU SOLVE FOR AN UNKNOWN QUANTITY.	15	17	11	13	19	6	14	
A 6 A1-06 DO YOU CONVERT NUMBERS TO LOGARITHMS.	2	2	3	0	3	0	5	
A 7 A1-07 DO YOU USE LOGARITHM TABLES IN ANY TYPE OF CALCULATIONS.	2	2	3	0	5	0	5	
A 8 A1-08 DO YOU SOLVE QUADRATIC EQUATIONS.								DIRECT CURRENT AND VOLTAGE
A 9 A1-09 DO YOU USE THE NATURAL SYSTEM OF LOGARITHMS (THIS IS THE LOGARITHM SYSTEM WHICH USES THE NUMBER 2.718 AS	3	5	0	2	5	0	0	
A 10 A1-10 DO YOU WORK WITH VECTOR QUANTITIES, SUCH AS ADDING OR SUBTRACTING TWO VECTORS.	3	3	3	0	3	3	5	
A 11 A1-11 DO YOU WORK WITH TRIGONOMETRIC FUNCTIONS SUCH AS SINE, COSINE, OR TANGENT.	3	3	3	0	5	0	5	
A 12 A1-12 DO YOU DETERMINE AREAS OF PLANE FIGURES, SUCH AS AREAS OF CIRCLES OR TRIANGLES.	13	15	8	7	19	11	10	
A 13 A1-13 DO YOU SOLVE OR USE SIMULTANEOUS EQUATIONS.	4	5	3	0	11	0	5	
A 14 A1-14 DO YOU SOLVE OR USE PROPORTIONS.	9	10	11	5	14	0	14	
A 15 A2-01 DO YOU USE THE TERM VOLTAGE OR VOLT.	87	86	97	84	92	75	95	RESISTANCE
A 16 A2-02 DO YOU USE THE TERM ELECTROMOTIVE FORCE (EMF).	31	32	28	32	30	19	38	
A 17 A2-03 DO YOU USE THE TERM OHM.	87	87	94	88	89	75	90	
A 18 A2-04 DO YOU USE THE TERM ION.	14	14	19	7	16	6	24	
A 19 A2-05 DO YOU USE THE TERM DYNE.	6	5	6	2	8	6	5	
A 20 A2-06 DO YOU USE THE TERM AMPERE.	83	84	89	84	86	69	81	
A 21 A2-07 DO YOU USE THE TERM NEUTRON.	13	15	6	11	14	6	10	
A 22 A2-08 DO YOU USE THE TERM COULOMB.	7	9	3	5	5	8	5	
A 23 A2-09 DO YOU USE THE TERM PROTON.	12	13	8	11	14	6	14	
A 24 A3-01 DO YOU WORK WITH RESISTORS IN YOUR PRESENT JOB.	73	72	83	70	65	67	81	
A 25 A3-02 DO YOU INSPECT RESISTORS.	79	78	86	79	81	67	81	
A 26 A3-03 DO YOU CLEAN RESISTORS.	56	59	50	55	68	42	48	
A 27 A3-04 DO YOU ADJUST RESISTORS.	61	61	67	57	73	44	67	
A 28 A3-05 DO YOU CHECK OHMIC VALUE OF RESISTORS.	77	78	86	79	76	64	81	
A 29 A3-06 DO YOU REMOVE OR REPLACE RESISTORS.	77	78	86	79	73	67	86	
A 30 A3-07 DO YOU USE OR REFER TO TEMPERATURE COEFFICIENTS FOR RESISTORS ON ANY TASKS IN YOUR PRESENT JOB.	22	24	19	23	19	14	24	
A 31 A3-08 DO YOU USE OR REFER TO RESISTOR SYMBOLS, SUCH AS FOR FIXED RESISTORS OR FOR TAPPED RESISTORS.	62	64	67	59	65	50	48	
A 32 A3-09 DO YOU IDENTIFY OR CLASSIFY THE RESISTORS YOU WORK WITH AS CARBON, FIXED WIRE, SLIDE TAP, RHEOSTAT OR	65	68	61	68	62	53	52	

TASK GROUP SUMMARY  
PATIENT NEEDS REFORMING

Dy-TSk

	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
33 A3-10 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE THE OHMIC VALUE OF RESISTANCE.	74	78	75	71	81	64	71
34 A3-11 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE THE TOLERANCE OF RESISTORS.	65	68	67	59	65	64	67
35 A3-12 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE THE FAILURE RATE OF RESISTORS.	19	23	8	25	27	6	10
36 A3-13 DO YOU MAKE DECISIONS IN WHICH YOU MUST DETERMINE HOW TWO OR MORE BATTERIES MUST BE CONNECTED TOGETHER TO	37	39	25	36	54	19	29
37 A3-14 DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT ANY OF THE FOLLOWING COMPONENTS: BATTERY,	83	82	92	82	78	72	90
38 A3-15 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES RESISTIVE CIRCUITS.	42	45	36	43	43	33	38
39 A3-16 DO YOU CALCULATE TOTAL CURRENT FOR SERIES RESISTIVE CIRCUITS.	41	45	33	43	43	31	38
40 A3-17 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES RESISTIVE CIRCUITS.	38	41	31	36	38	33	33
41 A3-18 DO YOU CALCULATE POWER DISSIPATION FOR SERIES RESISTIVE CIRCUITS.	30	32	28	30	32	17	29
42 A3-19 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES PARALLEL RESISTIVE CIRCUITS.	39	40	36	41	38	25	38
43 A3-20 DO YOU CALCULATE TOTAL CURRENT FOR SERIES PARALLEL RESISTIVE CIRCUITS.	38	40	33	39	38	25	38
44 A3-21 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	37	40	31	39	35	25	33
45 A3-22 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	34	35	33	36	32	19	38
46 A3-23 DO YOU CALCULATE POWER DISSIPATION FOR SERIES PARALLEL RESISTIVE CIRCUITS.	29	30	28	32	30	11	29
47 A3-24 DO YOU CALCULATE TOTAL RESISTANCE FOR PARALLEL RESISTIVE CIRCUITS.	35	38	31	41	30	22	38
48 A3-25 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RESISTIVE CIRCUITS.	34	37	28	38	30	22	38
49 A3-26 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR PARALLEL RESISTIVE CIRCUITS.	33	37	25	38	27	25	33
50 A3-27 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR PARALLEL RESISTIVE CIRCUITS.	29	32	25	34	24	19	33
51 A3-28 DO YOU CALCULATE POWER DISSIPATION FOR PARALLEL RESISTIVE CIRCUITS.	24	27	19	30	22	11	24
52 B1-01 DO YOU MEASURE RESISTANCE.	91	92	94	95	84	89	90
53 B1-02 DO YOU REPAIR AN OHMMETER.	7	7	11	9	5	3	14
54 B1-03 DO YOU MEASURE VOLTAGE.	92	92	94	95	81	94	95
55 B1-04 DO YOU REPAIR A VOLTMETER.	2	2	6	0	5	0	5
56 B1-05 DO YOU REPAIR AN AMPHETER.	2	2	2	3	2	5	0
57 B1-06 DO YOU MEASURE CURRENT.	77	78	78	82	68	64	76
58 B1-07 DO YOU USE A MULTIMETER.	91	91	92	93	81	97	86



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK																				
										SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
										003	007	008	009	010	011	012				
8	59	81-08 DO YOU DIRECTLY USE A QUANTITY OF CHARGE CALLED A COULOMB.		5	5	3	2	8	3	0										
8	60	81-09 DO YOU READ SCHEMATICS.		96	96	97	96	89	100	100										
8	61	82-01 DO YOU USE OR REFER THE TERM EFFECTIVE VOLTAGE (RMS).		36	37	42	36	30	28	33										
8	62	82-02 DO YOU USE OR REFER THE TERM PEAK TO PEAK VOLTAGE.		39	42	36	41	30	33	29										
8	63	82-03 DO YOU USE OR REFER THE TERM AVERAGE VOLTAGE (DC).		42	44	36	43	41	33	33										
8	64	82-04 DO YOU USE OR REFER THE TERM WAVE LENGTH.		29	31	28	36	19	22	29										
8	65	82-05 DO YOU USE OR REFER THE TERM FREQUENCY.		41	42	44	45	32	28	43										
8	66	82-06 DO YOU USE OR REFER THE TERM INSTANTANEOUS VALUE.		13	14	14	11	16	11	10										
8	67	83-01 DO YOU WORK WITH INDUCTORS OR CIRCUITS CONTAINING INDUCTORS, CHOKES, OR CHOKE COILS IN YOUR PRESENT JOB.		25	27	17	32	22	8	10										
8	68	83-02 DO YOU INSPECT INDUCTORS.		24	27	14	36	19	8	10										
8	69	83-03 DO YOU CLEAN INDUCTORS.		16	18	11	21	16	3	10										
8	70	83-04 DO YOU ADJUST INDUCTORS.		13	15	6	21	16	0	5										
8	71	83-05 DO YOU REMOVE OR REPLACE INDUCTORS.		22	25	14	30	19	8	10										
8	72	83-06 DO YOU USE OR REFER TO INDUCTANCE.		18	22	11	29	11	6	5										
8	73	83-07 DO YOU USE OR REFER TO HENRIES.		14	16	8	21	14	3	5										
8	74	83-08 DO YOU USE OR REFER TO INDUCTIVE REACTANCE.		14	17	11	21	11	6	5										
8	75	83-09 DO YOU USE OR REFER TO COPPER LOSS IN INDUCTORS.		2	2	0	4	3	0	0										
8	76	83-10 DO YOU USE OR REFER TO HYSTERESIS LOSS IN INDUCTORS.		2	3	0	5	3	0	0										
8	77	83-11 DO YOU USE OR REFER TO EDDY CURRENT LOSS IN INDUCTORS.		3	4	0	5	5	0	0										
8	78	83-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTANCE IS PROPORTIONAL TO THE SQUARE OF THE		5	7	0	7	8	0	0										
8	79	83-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE		6	8	0	7	8	0	0										
8	80	83-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS INVERSELY PROPORTIONAL TO		7	8	6	9	8	0	5										
8	81	83-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE		4	6	0	5	8	0	0										
8	82	83-16 DO YOU CALCULATE INDUCTANCE FOR A PARTICULAR INDUCTOR USING FORMULAS.		4	6	0	9	5	0	0										
8	83	83-17 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN SERIES.		8	10	3	16	8	0	0										
8	84	83-18 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN PARALLEL.		8	11	3	18	8	0	0										
8	85	83-19 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN SERIES-PARALLEL CIRCUITS.		8	10	3	16	8	0	0										
8	86	83-20 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LAGS VOLTAGE IN AC INDUCTOR CIRCUITS.		9	12	6	18	8	0	10										
8	87	83-21 DO YOU CALCULATE INDUCTIVE REACTANCE.		4	10	3	14	8	0	0										

ALTERNATING CURRENT

INDUCTORS AND  
INDUCTIVE REACTANCE

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
B 88 B3-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTIVE REACTANCE IS DIRECTLY PROPORTIONAL TO INDUCTIVE REACTANCE?	6	7	6	11	8	0	5
B 89 B3-23 DO YOU WORK WITH POWER INDUCTORS.	13	15	11	20	14	0	5
B 90 B3-24 DO YOU WORK WITH AUDIO FREQUENCY INDUCTORS.	7	9	0	9	5	0	0
B 91 B3-25 DO YOU WORK WITH RADIO FREQUENCY INDUCTORS.	2	2	3	0	5	0	0
C 92 C1-01 DO YOU WORK WITH CAPACITORS OR CIRCUITS CONTAINING CAPACITORS ON YOUR PRESENT JOB.	72	75	67	66	81	69	57
C 93 C1-02 DO YOU INSPECT CAPACITORS.	66	70	53	70	73	58	38
C 94 C1-03 DO YOU CLEAN CAPACITORS.	41	46	25	38	57	33	19
C 95 C1-04 DO YOU ADJUST CAPACITORS.	17	21	8	16	32	6	10
C 96 C1-05 DO YOU TEST CAPACITORS.	65	70	50	64	73	58	43
C 97 C1-06 DO YOU DISCHARGE CAPACITORS.	69	74	53	63	84	64	43
C 98 C1-07 DO YOU REMOVE OR REPLACE CAPACITORS.	71	74	61	70	81	61	52
C 99 C1-08 DO YOU USE OR REFER TO DISTRIBUTED CAPACITANCE.	9	11	6	5	11	8	10
C 100 C1-09 DO YOU USE OR REFER TO ORBITAL STRESS OF ELECTRONS IN A DIELECTRIC.	2	3	0	2	8	0	0
C 101 C1-10 DO YOU USE OR REFER TO FARADS, MICROFARADS, OR PICOFARADS.	36	41	28	29	35	39	19
C 102 C1-11 DO YOU USE OR REFER TO CAPACITANCE.	44	45	47	43	38	39	43
C 103 C1-12 DO YOU USE OR REFER TO DIELECTRIC CONSTANT.	4	5	0	7	8	0	0
C 104 C1-13 DO YOU USE OR REFER TO WORKING VOLTAGE RATING OF CAPACITORS.	38	42	28	39	38	31	19
C 105 C1-14 DO YOU USE OR REFER TO CAPACITIVE REACTANCE.	23	28	11	29	24	17	5
C 106 C1-15 DO YOU USE OR REFER TO CAPACITOR COLOR CODES.	25	29	17	25	27	14	10
C 107 C1-16 THE CAPACITORS YOU WORK WITH IN DC CIRCUITS.	61	62	61	61	68	50	52
C 108 C1-17 THE CAPACITORS YOU WORK WITH ARE IN AC CIRCUITS.	69	71	61	66	76	61	48
C 109 C1-18 THE CAPACITORS YOU WORK WITH ARE IN CIRCUITS WITH BOTH DC AND AC.	50	48	56	50	54	36	48
C 110 C1-19 THE CAPACITORS YOU WORK WITH ARE DON'T REMEMBER WHICH CIRCUITS.	18	19	14	14	22	22	14
C 111 C1-20 DO YOU CALCULATE CAPACITANCE FOR A PARTICULAR CAPACITOR USING FORMULAS.	9	12	0	11	14	6	0
C 112 C1-21 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE CAPACITANCE OF A CAPACITOR IS DIRECTLY PROPORTIONAL	4	5	0	5	11	0	0
C 113 C1-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE CAPACITANCE OF A CAPACITOR IS INVERSELY PROPORTIONAL	4	4	0	4	11	0	0
C 114 C1-23 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES.	15	15	11	18	11	19	10
C 115 C1-24 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN PARALLEL.	14	15	11	14	11	19	10
C 116 C1-25 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES-PARALLEL CIRCUITS.	13	14	11	16	11	14	10
C 117 C1-26 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT DOES NOT FLOW THROUGH CAPACITORS, IT ONLY	13	16	3	13	16	11	5

CAPACITORS AND  
CAPACITIVE  
REACTANCE

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC SPC SPC SPC SPC SPC  
003 007 008 009 010 011 012

C 118 C1-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LEADS VOLTAGE IN AC CAPACITOR CIRCUITS.

C 119 C1-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITIVE REACTANCE IS INVERSELY PROPORTIONAL TO CAPACITANCE.

C 120 C1-29 DO YOU CALCULATE CAPACITIVE REACTANCE.

C 121 C1-30 DO YOU WORK WITH ROTOR-STATOR CAPACITORS (VARIABLE).

C 122 C1-31 DO YOU WORK WITH COMPRESSION (TRIMMER) CAPACITORS.

C 123 C1-32 DO YOU WORK WITH ELECTROLYTIC CAPACITORS (FIXED).

C 124 C1-33 DO YOU WORK WITH PAPER CAPACITORS (FIXED).

C 125 C1-34 DO YOU WORK WITH MICA CAPACITORS (FIXED).

C 126 C1-35 DO YOU WORK WITH CERAMIC CAPACITORS (FIXED).

C 127 C1-36 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF CAPACITORS.

C 128 C2-01 DO YOU WORK WITH TRANSFORMERS ON YOUR PRESENT JOB.

C 129 C2-02 DO YOU INSPECT TRANSFORMERS.

C 130 C2-03 DO YOU CLEAN TRANSFORMERS.

C 131 C2-04 DO YOU ADJUST TRANSFORMERS.

C 132 C2-05 DO YOU TROUBLESHOOT TRANSFORMERS.

C 133 C2-06 DO YOU REMOVE OR REPLACE COMPLETE TRANSFORMERS.

C 134 C2-07 DO YOU REMOVE OR REPLACE TRANSFORMER PARTS, SUCH AS THE PRIMARY WINDING.

C 135 C2-08 DO YOU MAKE A DISTINCTION BETWEEN MUTUAL INDUCTION AND MUTUAL INDUCTANCE (M).

C 136 C2-09 DO YOU USE THE SYMBOL FOR MUTUAL INDUCTANCE, M.

C 137 C2-10 DO YOU REFER TO OR USE THE COEFFICIENT OF COUPLING WHEN WORKING WITH TRANSFORMERS.

C 138 C2-11 DO YOU CALCULATE TURNS RATIOS FOR TRANSFORMERS USING CURRENT OR VOLTAGE RATIOS.

C 139 C2-12 DO YOU REFER TO REFLECTED IMPEDANCE WHEN WORKING WITH TRANSFORMERS.

C 140 C2-13 DO YOU CALCULATE IMPEDANCE INTERACTIONS FOR TRANSFORMERS.

C 141 C2-14 DO YOU WORK WITH AUTOTRANSFORMERS.

C 142 C2-15 DO YOU WORK WITH POWER TRANSFORMERS.

C 143 C2-16 DO YOU WORK WITH AUDIO TRANSFORMERS.

C 144 C2-17 DO YOU WORK WITH RADIO FREQUENCY TRANSFORMERS.

C 145 C2-18 DO YOU WORK WITH DON'T REMEMBER WHAT TYPE OF TRANSFORMER.

C 146 C2-19 DO YOU CHECK TRANSFORMERS FOR OPEN WINDINGS BY MEASURING RESISTANCE.

C 147 C2-20 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING RESISTANCE.

C 148 C2-21 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING OUTPUT VOLTAGES.

C 149 C2-22 DO YOU MEASURE RESISTANCE OF TRANSFORMER WINDINGS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR

TRANSFORMERS



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK		SPC U03	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
C 150	C2-23 DO YOU MEASURE OUTPUT VOLTAGE OF TRANSFORMERS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN SYMBOLS FOR TRANSFORMERS.	26	26	22	21	24	31	19
C 151	C2-24 DO YOU REFER TO THE BASIC TRANSFORMER SCHEMATIC SYMBOLS FOR TRANSFORMERS.	47	50	36	41	41	47	29
C 152	C2-25 DO YOU REFER TO THE MULTIPLE SECONDARY-WINDINGS SCHEMATIC SYMBOLS FOR TRANSFORMERS.	34	36	28	29	32	28	19
C 153	C2-26 DO YOU REFER TO THE MULTIPLE TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS.	34	38	22	27	35	31	14
C 154	C2-27 DO YOU REFER TO THE CENTER TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS.	37	41	25	34	38	31	19
C 155	C2-28 DO YOU REFER TO THE AIR CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS.	20	21	17	20	22	17	5
C 156	C2-29 DO YOU REFER TO THE IRON CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS.	24	26	17	20	24	28	5
C 157	C2-30 DO YOU REFER TO THE COMBINATIONS OF THE ABOVE SCHEMATIC SYMBOLS FOR TRANSFORMERS.	28	30	25	27	27	25	19
C 158	C2-31 DO YOU DETERMINE PHASE RELATIONSHIPS BETWEEN SECONDARY AND PRIMARY VOLTAGES OF TRANSFORMERS USING TRANSFORMERS YOU WORK WITH.	15	15	11	14	19	17	10
C 159	C2-32 DO YOU DETERMINE OR REFER TO THE TYPE OF CORE IN TRANSFORMERS YOU WORK WITH.	14	15	6	11	19	17	5
C 160	C2-33 DO YOU REFER TO OR USE THE GENERAL RULE THAT THE TURNS RATIO OF A TRANSFORMER IS EQUAL TO THE VOLTAGE RATIOS FOR TRANSFORMERS.	10	12	3	9	22	6	0
C 161	C2-34 DO YOU USE OR REFER TO STEP-UP OR STEP-DOWN RATIOS FOR TRANSFORMERS.	16	16	14	13	22	11	10
C 162	C2-35 DO YOU CALCULATE VOLTAGE RATIOS FOR TRANSFORMERS USING TURNS RATIOS.	6	6	0	2	14	6	0
C 163	C2-36 DO YOU CALCULATE CURRENT RATIOS FOR TRANSFORMERS USING TURNS RATIOS.	6	6	0	4	14	3	0
C 164	C2-37 DOES YOUR JOB INVOLVE ANY TASKS DEALING WITH 3 PHASE TRANSFORMERS.	12	14	6	11	22	6	5
C 165	C2-38 DO YOU INSPECT 3 PHASE TRANSFORMERS.	12	12	11	11	19	3	14
C 166	C2-39 DO YOU CLEAN OR LUBRICATE 3 PHASE TRANSFORMERS.	8	8	8	5	14	3	14
C 167	C2-40 DO YOU ADJUST 3 PHASE TRANSFORMERS.	6	5	6	5	11	0	10
C 168	C2-41 DO YOU TROUBLESHOOT 3 PHASE TRANSFORMERS.	10	9	8	11	14	3	10
C 169	C2-42 DO YOU REMOVE OR REPLACE COMPLETE 3 PHASE TRANSFORMER.	11	11	8	13	14	3	10
C 170	C2-43 DO YOU REMOVE OR REPLACE 3 PHASE TRANSFORMER PARTS, SUCH AS A WINDING.	5	5	3	4	11	0	5
C 171	C3-01 DO YOU USE OR REFER TO PERMANENT MAGNETS.	28	32	19	29	32	19	24
C 172	C3-02 DO YOU USE OR REFER TO TEMPORARY MAGNETS.	20	24	11	23	22	17	14
C 173	C3-03 DO YOU USE OR REFER TO RETENTIVITY OF MAGNETIC MATERIALS.	8	8	3	7	14	6	0
C 174	C3-04 DO YOU USE OR REFER TO RELUCTANCE OF MAGNETIC MATERIALS.	6	5	3	5	14	3	0

MAGNETISM



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC SPC SPC SPC SPC  
003 007 008 009 010 011 012

C 175 C3-05 DO YOU USE OR REFER TO PERMEABILITY OF MAGNETIC MATERIALS.

C 176 C3-06 DO YOU USE OR REFER TO RESIDUAL MAGNETISM.

C 177 C3-07 DO YOU USE OR REFER TO MAGNETIC LINES OF FORCE OR FLUX.

C 178 C3-08 DO YOU USE OR REFER TO WEBER'S THEORY OF MAGNETISM.

C 179 C3-09 DO YOU USE OR REFER TO THE DOMAIN THEORY OF MAGNETISM.

C 180 C3-10 DO YOU USE OR REFER TO MAGNETIC INDUCTION.

C 181 C3-11 DO YOU USE OR REFER TO FLUX DENSITY.

C 182 C3-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT FOR MAGNETIC POLES, LIKE POLES REPEL AND UNLIKE POLES ATTRACT.

C 183 C3-13 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE DIRECTION OF MAGNETIC FIELDS ABOUT STRAIGHT WIRES.

C 184 C3-14 DO YOU USE THE LEFT THUMB RULE TO FIND THE NORTH POLE OF A CURRENT CARRYING COIL.

C 185 D1-01 DO YOU WORK WITH RC, LR, OR RCL CIRCUITS ON YOUR PRESENT JOB.

D 186 D1-02 DO YOU USE OR REFER TO VECTORS WHEN WORKING WITH RCL CIRCUITS.

D 187 D1-03 DO YOU USE OR REFER TO PYTHAGOREAN THEOREM WHEN WORKING WITH RCL CIRCUITS.

D 188 D1-04 DO YOU USE OR REFER TO SINE WHEN WORKING WITH RCL CIRCUITS.

D 189 D1-05 DO YOU USE OR REFER TO COSINE WHEN WORKING WITH RCL CIRCUITS.

D 190 D1-06 DO YOU USE OR REFER TO TANGENT WHEN WORKING WITH RCL CIRCUITS.

D 191 D1-07 DO YOU USE OR REFER TO WATTS WHEN WORKING WITH RCL CIRCUITS.

D 192 D1-08 DO YOU USE OR REFER TO TRUE POWER (PT) WHEN WORKING WITH RCL CIRCUITS.

D 193 D1-09 DO YOU USE OR REFER TO MAXIMUM POWER (PM) WHEN WORKING WITH RCL CIRCUITS.

D 194 D1-10 DO YOU USE OR REFER TO AVERAGE POWER (PAVE) WHEN WORKING WITH RCL CIRCUITS.

D 195 D1-11 DO YOU USE OR REFER TO APPARENT POWER (PA) WHEN WORKING WITH RCL CIRCUITS.

D 196 D1-12 DO YOU USE OR REFER TO POWER FACTOR (PF) WHEN WORKING WITH RCL CIRCUITS.

D 197 D1-13 DO YOU USE OR REFER TO RESONANT CIRCUITS WHEN WORKING WITH RCL CIRCUITS.

D 198 D1-14 DO YOU USE OR REFER TO BANDWIDTH WHEN WORKING WITH RCL CIRCUITS.

D 199 D1-15 DO YOU USE OR REFER TO SELECTIVITY WHEN WORKING WITH RCL CIRCUITS.

RCL CIRCUITS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 003	SPC 007	SPC U08	SPC 009	SPC 010	SPC 011	SPC 012
D 200 DI-16 DO YOU USE OR REFER TO RESONANT FREQUENCY WHEN WORKING WITH RCL CIRCUITS.	4	3	3	4	8	0	5
D 201 DI-17 DO YOU USE OR REFER TO HALF POWER POINTS WHEN WORKING WITH RCL CIRCUITS.	2	1	3	0	5	0	5
D 202 DI-18 DO YOU USE OR REFER TO BANDPASS REGION WHEN WORKING WITH RCL CIRCUITS.	2	1	3	0	5	0	5
D 203 DI-19 DO YOU USE OR REFER TO CIRCUIT Q WHEN WORKING WITH RCL CIRCUITS.	2	2	0	0	5	3	0
D 204 DI-20 DO YOU USE OR REFER TO TANK CIRCUITS WHEN WORKING WITH RCL CIRCUITS.	6	6	3	9	5	3	5
D 205 DI-21 DO YOU DETERMINE VALUES OF TRIGONOMETRIC FUNCTIONS USING FORMULAS: SINE OF AN ANGLE = OPPOSITE SIDE	2	2	0	0	8	3	0
D 206 DI-22 DO YOU DRAW VOLTAGE, CURRENT, OR IMPEDANCE VECTOR DIAGRAMS FOR CIRCUITS.	4	4	3	4	8	3	5
D 207 DI-23 DO YOU CALCULATE TOTAL IMPEDANCE FOR CAPACITIVE CIRCUITS.	5	5	3	5	11	3	5
D 208 DI-24 DO YOU CALCULATE PHASE ANGLES BETWEEN IMPEDANCE AND RESISTANCE IN CAPACITIVE CIRCUITS.	2	2	3	0	8	0	5
D 209 DI-25 DO YOU CALCULATE TOTAL IMPEDANCE FOR SERIES RCL CIRCUITS.	5	5	3	5	11	3	5
D 210 DI-26 DO YOU CALCULATE IMPEDANCE ANGLES FOR SERIES RCL CIRCUITS.	2	2	3	0	8	0	5
D 211 DI-27 DO YOU CALCULATE APPARENT POWER (PA) FOR SERIES RCL CIRCUITS.	3	2	3	0	8	3	5
D 212 DI-28 DO YOU CALCULATE TRUE POWER (PT) FOR SERIES RCL CIRCUITS.	2	2	3	0	8	0	5
D 213 DI-29 DO YOU CALCULATE POWER FACTORS (PF) FOR SERIES RCL CIRCUITS.	3	2	6	0	8	0	5
D 214 DI-30 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RCL CIRCUITS.	6	5	6	7	8	3	5
D 215 DI-31 DO YOU CALCULATE IMPEDANCE ANGLES FOR PARALLEL RCL CIRCUITS.	2	2	0	0	8	0	0
D 216 DI-32 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING THE ASSUMED VOLTAGE METHOD.	2	2	0	0	8	3	0
D 217 DI-33 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING OHM'S LAW.	4	4	3	4	8	3	5
D 218 DI-34 DO YOU CHECK CAPACITORS USING OHMMETERS.	15	17	8	21	16	6	0
D 219 DI-35 DO YOU CHECK CAPACITORS USING SUBSTITUTION.	9	11	6	11	11	8	5
D 220 DI-36 DO YOU CHECK INDUCTORS USING OHMMETERS.	12	13	6	16	16	0	0
D 221 DI-37 DO YOU CHECK INDUCTORS USING SUBSTITUTION.	8	8	6	9	11	3	5
D 222 DI-38 DO YOU USE OR REFER TO THE GENERAL RULE THAT $\text{THETA} = 0$ , $\text{PF} = 1$ , AND $\text{PA} = \text{PT}$ FOR RESONANT CIRCUITS.	2	2	0	0	8	0	0
D 223 DI-39 DO YOU CALCULATE RESONANT FREQUENCIES FOR RCL CIRCUITS.	3	2	3	2	8	0	5
D 224 DI-40 DO YOU USE OR REFER TO THE GENERAL RULE THAT IMPEDANCE IS MINIMUM AND CURRENT MAXIMUM AT THE	2	2	0	0	8	0	0

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC SPC SPC SPC SPC SPC  
003 007 008 009 010 011 012

D 225 01-41 DO YOU USE OR REFER TO THE GENERAL RULE THAT  
LINE CURRENT IS MINIMUM AND IMPEDANCE MAXIMUM AT  
D 226 01-42 DO YOU USE OR REFER TO THE GENERAL RULE THAT  
HALF POWER POINTS ARE AT 70.7 PERCENT OF THE PEAK  
D 227 01-43 DO YOU USE OR REFER TO THE GENERAL RULE THAT  
BANDWIDTH IS INVERSELY PROPORTIONAL TO Q.  
D 228 01-44 DO YOU DETERMINE HOW CHANGES IN FREQUENCY,  
RESISTANCE, CAPACITANCE, OR INDUCTANCE WILL AFFECT  
D 229 02-01 IN YOUR PRESENT JOB, DO YOU WORK WITH, USE, OR  
REFER TO SERIES OR PARALLEL RESONANCE CIRCUITS OR  
D 230 02-02 DO YOU WORK WITH, USE, OR REFER TO TIME CONSTANTS.  
D 231 02-03 DO YOU WORK WITH, USE, OR REFER TO AVAILABLE  
VOLTAGE.  
D 232 02-04 DO YOU WORK WITH, USE, OR REFER TO TRANSIENT  
INTERVALS.  
D 233 02-05 DO YOU USE OR REFER TO THE GENERAL RULE THAT A  
CAPACITOR IS FULLY CHARGED (OR DISCHARGED) AFTER FIVE  
D 234 02-06 DO YOU USE OR REFER TO UNIVERSAL TIME CONSTANT  
CHARTS.  
D 235 02-07 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE  
CIRCUITS CURRENT OR COMPONENT VOLTAGES AFTER A  
D 236 02-08 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE  
THE TIME REQUIRED FOR CIRCUIT CURRENT OR COMPONENT  
D 237 02-09 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE  
COMPONENT VALUES REQUIRED FOR CIRCUIT CURRENT AND  
D 238 02-10 DO YOU USE OR REFER TO THE GENERAL RULE THAT  
CURRENT IN LR CIRCUITS REACHES ITS MINIMUM VALUE (OR  
D 239 03-01 DO YOU WORK WITH CIRCUITS USED AS FILTERS ON  
YOUR PRESENT JOB.  
D 240 03-02 DO YOU INSPECT FILTER CIRCUITS.  
D 241 03-03 DO YOU CLEAN FILTER CIRCUITS.  
D 242 03-04 DO YOU ALIGN OR ADJUST FILTER CIRCUITS.  
D 243 03-05 DO YOU TROUBLESHOOT TO THE FILTER CIRCUIT.  
D 244 03-06 DO YOU TROUBLESHOOT TO COMPONENT PARTS OF FILTER  
CIRCUITS.  
D 245 03-07 DO YOU REMOVE OR REPLACE THE COMPLETE FILTER  
CIRCUIT.

SERIES AND  
PARALLEL  
RESONANCE  
(TIME CONSTANTS)

FILTERS



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
D 246 D3-08 DO YOU REMOVE OR REPLACE COMPONENT PARTS OF FILTER CIRCUITS.	12	11	14	16	14	3	10
D 247 D3-09 DO YOU WORK ON LOW PASS FILTERS.	6	5	6	4	11	3	5
D 248 D3-10 DO YOU WORK ON HIGH PASS FILTERS.	7	6	6	5	11	3	5
D 249 D3-11 DO YOU WORK ON BANDPASS FILTERS.	4	4	3	4	11	0	5
D 251 D3-13 DO YOU WORK ON DON'T REMEMBER WHICH TYPE OF FILTER	3	3	0	2	11	0	0
D 250 D3-12 DO YOU WORK ON BAND-REJECT FILTERS.	10	13	3	18	14	0	0
D 252 D3-14 DO YOU WORK WITH L-SECTION FILTER CONFIGURATIONS.	4	4	3	2	11	3	5
D 253 D3-15 DO YOU WORK WITH T-SECTION FILTER CONFIGURATIONS.	3	4	0	2	11	3	0
D 254 D3-16 DO YOU WORK WITH PI-SECTION FILTER CONFIGURATIONS.	3	4	0	2	11	3	0
D 255 D3-17 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF FILTER CONFIGURATIONS.	10	12	6	14	14	0	0
D 256 D3-18 ARE PARALLEL RESONANT CIRCUITS USED IN FILTERS YOU WORK WITH.	6	6	3	7	11	0	5
D 257 D3-19 ARE SERIES-PARALLEL CIRCUITS USED IN FILTERS YOU WORK WITH.	8	8	6	9	14	3	5
D 258 D3-20 ARE SERIES RESONANT CIRCUITS USED IN FILTERS YOU WORK WITH.	5	5	3	5	11	0	5
D 259 D3-21 ARE DON'T REMEMBER WHICH TYPE OF BASIC CIRCUIT USED IN FILTERS YOU WORK WITH.	10	11	6	13	14	0	0
D 260 D3-22 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CAPACITANCE OR INDUCTANCE VALUES REQUIRED FOR SPECIFIC	4	4	0	2	11	3	0
E 261 E1-01 DO YOU WORK WITH COUPLING DEVICES ON YOUR PRESENT JOB.	9	11	3	14	11	3	0
E 262 E1-02 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED	7	8	0	9	11	3	0
E 263 E1-03 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED	7	8	0	9	11	3	0
E 264 E1-04 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED	8	9	3	11	11	3	0
E 265 E1-05 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THE RC COUPLING FUNCTIONS.	6	8	0	9	11	3	0
E 266 E1-06 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THE IMPEDANCE COUPLING FUNCTIONS.	6	7	0	9	11	0	0
E 267 E1-07 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THE TRANSFORMER COUPLING FUNCTIONS.	7	8	3	9	11	3	0
E 268 E1-08 DO YOU WORK WITH DIRECTLY COUPLED CIRCUITS.	6	7	3	7	11	3	0
E 269 E1-09 DO YOU WORK WITH CAPACITIVE-RESISTIVE COUPLED CIRCUITS.	6	7	0	7	11	3	0
E 270 E1-10 DO YOU WORK WITH CAPACITIVE-INDUCTIVE COUPLED CIRCUITS.	5	6	0	7	11	0	0
E 271 E1-11 DO YOU WORK WITH TRANSFORMER COUPLED CIRCUITS.	6	6	3	5	11	3	0
E 272 E1-12 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF COUPLING CIRCUIT.	5	6	0	7	11	0	0

COUPLING



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

TASK	GROUP	SUMMARY	PERCENT	MEMBERS	PERFORMING	DI-TSK																			
						SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC	SPC
E 273	E2-01	ON YOUR PRESENT JOB DO YOU PERFORM SOLDERING TECHNIQUES OR INSPECT OR EVALUATE SOLDERED CONNECTIONS.				89	91	92	84	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89
E 274	E2-02	DO YOU SELECT TYPE OF SOLDER TO USE.				85	85	89	80	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89
E 275	E2-03	DO YOU ADD FLUX TO CONNECTIONS.				87	88	89	88	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89
E 276	E2-04	DO YOU CLEAN CONNECTIONS USING SOLVENTS.				73	75	72	59	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
E 277	E2-05	DO YOU STRIP INSULATION FROM WIRES.				91	92	94	88	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
E 278	E2-06	DO YOU CONNECT OR DISCONNECT HEAT SINKS.				80	82	78	80	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84
E 279	E2-07	DO YOU BEND OR SHAPE WIRES OR LEADS.				90	91	92	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89
E 280	E2-08	DO YOU CUT WIRES.				91	92	94	89	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
E 281	E2-09	DO YOU FILE OR SHAPE SOLDERING IRON TIPS.				86	87	92	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
E 282	E2-10	DO YOU TIN SOLDERING IRON TIPS.				88	88	92	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84
E 283	E2-11	DO YOU CLEAN SOLDERING IRON TIPS.				90	91	92	86	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89
E 284	E2-12	DO YOU CLEAN ELECTRICAL SURFACES USING ERASERS.				51	52	53	39	73	42	43	43	43	43	43	43	43	43	43	43	43	43	43	43
E 285	E2-13	DO YOU TIN OR PRE-TIN CONDUCTORS.				70	72	69	66	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
E 286	E2-14	DO YOU INSPECT SOLDERED CONNECTIONS.				91	92	92	88	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89
E 287	E2-15	DO YOU DESOLDER CONNECTIONS BY WICKING.				51	55	39	43	59	47	38	38	38	38	38	38	38	38	38	38	38	38	38	38
E 288	E2-16	DO YOU DESOLDER CONNECTIONS USING VACUUM DESOLDERING TOOLS.				33	32	36	23	38	31	33	33	33	33	33	33	33	33	33	33	33	33	33	33
E 289	E2-17	DO YOU CUT COMPONENT LEADS TO REMOVE COMPONENTS.				69	68	78	61	76	53	81	81	81	81	81	81	81	81	81	81	81	81	81	81
E 290	E2-18	DO YOU CRUSH COMPONENTS FOR REMOVAL.				16	15	11	14	22	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10
E 291	E2-19	DO YOU MAKE HARDWIRE CONNECTIONS.				75	78	78	71	76	72	76	76	76	76	76	76	76	76	76	76	76	76	76	76
E 292	E2-20	DO YOU MAKE PRINTED CIRCUIT BOARD CONNECTIONS				69	72	64	68	73	56	62	62	62	62	62	62	62	62	62	62	62	62	62	62
E 293	E2-21	DO YOU SOLDER PASSIVE COMPONENTS SUCH AS RESISTORS OR CAPACITORS ON PRINTED CIRCUIT BOARDS				64	65	58	66	70	50	52	52	52	52	52	52	52	52	52	52	52	52	52	52
E 294	E2-22	DO YOU SOLDER ACTIVE COMPONENTS SUCH AS SOLID-STATE DIODES OR TRANSISTORS ON PRINTED CIRCUIT BOARDS				61	62	58	61	59	50	57	57	57	57	57	57	57	57	57	57	57	57	57	57
E 295	E3-01	DO YOU WORK WITH RELAYS ON YOUR PRESENT JOB				73	69	78	80	57	58	81	81	81	81	81	81	81	81	81	81	81	81	81	81
E 296	E3-02	DO YOU ADJUST RELAYS				54	53	56	54	54	33	52	52	52	52	52	52	52	52	52	52	52	52	52	52
E 297	E3-03	DO YOU CLEAN RELAYS				71	69	72	75	62	58	76	76	76	76	76	76	76	76	76	76	76	76	76	76
E 298	E3-04	DO YOU INSPECT RELAYS				75	72	75	79	65	61	81	81	81	81	81	81	81	81	81	81	81	81	81	81
E 299	E3-05	DO YOU REMOVE OR REPLACE COMPLETE RELAYS				73	69	81	80	62	53	86	86	86	86	86	86	86	86	86	86	86	86	86	86
E 300	E3-06	DO YOU REMOVE OR REPLACE PARTS OR RELAYS				40	39	33	46	46	17	33	33	33	33	33	33	33	33	33	33	33	33	33	33
E 301	E3-07	DO YOU TROUBLESHOOT RELAYS				69	68	67	73	62	56	67	67	67	67	67	67	67	67	67	67	67	67	67	67
E 302	E3-08	DO YOU STRAIGHTEN RELAY CONTACTS				66	64	69	70	62	47	76	76	76	76	76	76	76	76	76	76	76	76	76	76
E 303	E3-09	DO YOU PERFORM TASKS ON RELAY CONTACTS				69	66	72	75	59	50	81	81	81	81	81	81	81	81	81	81	81	81	81	81
E 304	E3-10	DO YOU PERFORM TASKS ON RELAY COILS				21	18	22	11	38	8	24	24	24	24	24	24	24	24	24	24	24	24	24	24
E 305	E3-11	DO YOU PERFORM TASKS ON RELAY ARMATURES				27	25	31	13	46	8	33	33	33	33	33	33	33	33	33	33	33	33	33	33
E 306	E3-12	DO YOU PERFORM TASKS ON RELAY SPRINGS				31	30	31	27	49	14	43	43	43	43	43	43	43	43	43	43	43	43	43	43
E 307	E3-13	DO YOU PERFORM TASKS ON RELAY SPRINGS				54	52	53	57	51	31	62	62	62	62	62	62	62	62	62	62	62	62	62	62
E 308	E3-14	DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY OPEN (NO) SCHEMATIC SYMBOLS FOR RELAYS				58	55	64	66	49	33	62	62	62	62	62	62	62	62	62	62	62	62	62	62
E 309	E3-15	DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY CLOSED (NC) SCHEMATIC SYMBOLS FOR RELAYS				57	55	64	64	49	33	62	62	62	62	62	62	62	62	62	62	62	62	62	62
E 310	E3-16	DO YOU USE OR REFER TO DOUBLE POLE, DOUBLE THROW (DPDT) SCHEMATIC SYMBOLS FOR RELAYS				55	53	58	63	46	31	57	57	57	57	57	57	57	57	57	57	57	57	57	57
E 311	E3-17	DO YOU USE OR REFER TO DOUBLE POLE, DOUBLE THROW (DPDT) SCHEMATIC SYMBOLS FOR RELAYS				55	54	58	63	46	28	57	57	57	57	57	57	57	57	57	57	57	57	57	57

RELAYS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
E 312 E3-18 DO YOU USE OR REFER TO OTHER RELAY SYMBOLS SCHEMATIC SYMBOLS FOR RELAYS	46	47	47	52	41	25	48
E 313 E3-19 DO YOU CHECK ELECTRICAL CONTINUITY OF COILS BY MEASURING RESISTANCE	51	48	56	52	49	42	52
F 314 F1-01 IN YOUR PRESENT JOB: DO YOU PERFORM ANY TASKS DEALING WITH MICROPHONES	4	5	0	0	8	0	0
F 315 F1-02 DO YOU INSPECT MICROPHONES	4	5	0	0	8	0	0
F 316 F1-03 DO YOU CLEAN MICROPHONES	4	5	0	0	8	0	0
F 317 F1-04 DO YOU OPERATE MICROPHONES	4	5	0	0	8	0	0
F 318 F1-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT	4	5	0	0	5	0	0
F 319 F1-06 DO YOU TROUBLESHOOT DOWN TO MICROPHONE PARTS	2	2	0	0	5	0	0
F 320 F1-07 DO YOU REMOVE OR REPLACE COMPLETE MICROPHONES	3	4	0	0	5	0	0
F 321 F1-08 DO YOU REMOVE OR REPLACE MICROPHONE PARTS	2	2	0	0	5	0	0
F 322 F1-09 DO YOU PERFORM TASKS ON CARBON MICROPHONES	2	2	0	0	5	0	0
F 323 F1-10 DO YOU PERFORM TASKS ON CAPACITOR MICROPHONES	2	2	0	0	5	0	0
F 324 F1-11 DO YOU PERFORM TASKS ON CRYSTAL MICROPHONES	2	2	0	0	5	0	0
F 325 F1-12 DO YOU PERFORM TASKS ON DYNAMIC MICROPHONES	3	3	0	0	5	0	0
F 326 F1-13 DO YOU PERFORM TASKS ON VELOCITY RIBBON MICROPHONES	1	1	0	0	5	0	0
F 327 F2-01 IN YOUR PRESENT JOB: DO YOU PERFORM ANY TASKS DEALING WITH SPEAKERS	29	32	11	16	51	25	5
F 328 F2-02 DO YOU INSPECT SPEAKERS	30	32	14	16	54	25	5
F 329 F2-03 DO YOU CLEAN SPEAKERS	27	29	14	16	46	22	5
F 330 F2-04 DO YOU OPERATE SPEAKERS	28	31	14	14	54	22	5
F 331 F2-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT	29	32	14	16	54	25	5
F 332 F2-06 DO YOU TROUBLESHOOT DOWN TO SPEAKER PARTS	13	15	0	2	35	11	0
F 333 F2-07 DO YOU REMOVE OR REPLACE COMPLETE SPEAKERS	25	27	14	11	54	17	5
F 334 F2-08 DO YOU REMOVE OR REPLACE SPEAKER PARTS	9	10	0	2	24	3	0
F 335 F2-09 DO YOU PERFORM ANY TASKS ON SPEAKER CONES	7	8	0	0	16	14	0
F 336 F2-10 DO YOU PERFORM ANY TASKS ON SPEAKER SPIDERS	2	2	0	0	8	0	0
F 337 F2-11 DO YOU PERFORM ANY TASKS ON SPEAKER FIELD COILS	3	3	0	0	8	3	0
F 338 F2-12 DO YOU PERFORM ANY TASKS ON SPEAKER VOICE COILS	3	2	0	0	8	0	0
F 339 F2-13 DO YOU PERFORM ANY TASKS ON SPEAKER PERMANENT MAGNETS	4	4	0	0	14	3	0
F 340 F2-14 DO YOU PERFORM ANY TASKS ON SPEAKER ELECTROMAGNETS	3	3	0	0	14	0	0
F 341 F2-15 DO YOU PERFORM ANY TASKS ON SPEAKER SOFT IRON CORES	3	2	0	0	11	0	0
F 342 F3-01 DO YOU USE OSCILLOSCOPES IN YOUR PRESENT JOB	28	29	25	32	14	22	14
F 343 F3-02 DO YOU USE OSCILLOSCOPES TO PERFORM OPERATIONAL CHECKS	24	25	25	29	11	14	14
F 344 F3-03 DO YOU USE OSCILLOSCOPES TO PERFORM ALIGNMENTS OR ADJUSTMENTS	20	20	22	21	14	11	14
F 345 F3-04 DO YOU USE OSCILLOSCOPES TO TROUBLESHOOT ELECTRONIC CIRCUITS	25	26	25	27	11	19	14
F 346 F3-05 DO YOU USE OSCILLOSCOPES TO MEASURE FREQUENCY	19	22	11	27	11	14	10
F 347 F3-06 DO YOU USE OSCILLOSCOPES TO MEASURE TIME	13	14	8	13	14	14	5

OSCILLOSCOPES

SPEAKERS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
F 348 F3-07 DO YOU USE OSCILLOSCOPES TO OBSERVE LISAJOUS PATTERNS	10	11	8	11	8	11	5
F 349 F3-08 DO YOU USE OSCILLOSCOPES TO OBSERVE SIGNALS WHILE UTILIZING ATTENUATOR PROBES	15	15	17	13	11	17	5
F 350 F3-09 DO YOU USE OSCILLOSCOPES TO MAKE FREQUENCY OR TIME MEASUREMENTS USING DELAY TIME MULTIPLIERS	9	10	6	9	8	8	5
F 351 F3-10 DO YOU USE OSCILLOSCOPES TO MEASURE AC VOLTAGE	24	26	22	30	11	17	10
F 352 F3-11 DO YOU USE OSCILLOSCOPES TO MEASURE OR OBSERVE SIGNALS AFTER FIRST ADJUSTING THE GAIN AND DC BAL CONTROLS	14	15	14	14	11	14	10
F 353 F3-12 DO YOU USE OSCILLOSCOPES TO MEASURE DC VOLTAGE	23	24	22	29	8	14	14
G 354 G1-01 DO YOU WORK WITH SEMICONDUCTOR DIODES IN YOUR PRESENT JOB	45	43	47	46	32	39	43
G 355 G1-02 DO YOU INSPECT DIODES	43	42	42	43	32	33	38
G 356 G1-03 DO YOU REMOVE OR REPLACE DIODES	44	42	44	46	30	36	43
G 357 G1-04 DO YOU CHECK DIODES USING AN INSTRUMENT	40	39	39	39	30	36	29
G 358 G1-05 DO YOU USE ENERGY LEVEL DIAGRAMS IN YOUR WORK WITH DIODES	4	2	6	4	8	0	0
G 359 G1-06 DO YOU USE PN JUNCTION DIODE CHARACTERISTIC CURVES, TOGETHER WITH VALUES OF FORWARD AND REVERSE BIAS VOLTAGE, TO COMPUTE FORWARD OR REVERSE BIAS RESISTANCE FOR DIODES	10	9	6	5	22	6	0
G 360 G1-07 DO YOU COMPUTE FORWARD OR REVERSE BIAS RESISTANCE FOR DIODES	14	15	6	18	19	6	5
G 361 G1-08 DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES	31	31	25	32	27	22	24
G 362 G1-09 DO YOU IDENTIFY SEMICONDUCTOR DIODES AS OPPOSED TO OTHER ELECTRONIC COMPONENTS, SUCH AS RESISTORS, BASED ON EFFECTS OF DOPING ON CURRENT FLOW	37	38	33	41	30	28	24
G 363 G1-10 DO YOU REFER TO OR DO YOU DETERMINE THE GENERAL EFFECTS OF DOPING ON CURRENT FLOW	8	7	0	9	11	8	0
G 364 G1-11 DO YOU USE OR REFER TO MEASUREMENTS OF FORWARD BIAS RESISTANCE	24	23	17	36	16	8	5
G 365 G1-12 DO YOU USE OR REFER TO DIODE COLOR CODING	24	24	28	25	19	14	19
G 366 G1-13 DO YOU USE OR REFER TO CENTRIFUGAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	4	4	0	2	14	0	0
G 367 G1-14 DO YOU USE OR REFER TO CENTRIPETAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	4	3	0	0	14	0	0
G 368 G1-15 DO YOU USE OR REFER TO DIODE NUMBERING SYSTEM, SUCH AS IN 538	25	22	31	21	22	17	24
G 369 G1-16 DO YOU USE OR REFER TO KINETIC ENERGY OF AN ELECTRON MOVING IN ORBIT	4	4	0	2	14	0	0
G 370 G1-17 DO YOU USE OR REFER TO POTENTIAL ENERGY OF AN ELECTRON MOVING IN ORBIT	4	5	0	4	14	0	0
G 371 G1-18 DO YOU USE OR REFER TO MEASUREMENTS OF REVERSE BIAS RESISTANCE	18	18	11	23	19	8	10
G 372 G1-19 DO YOU USE OR REFER TO NUMBER OF ELECTRONS IN A PARTICULAR SHELL OR ORBIT	5	5	0	4	14	0	0
G 373 G1-20 DO YOU USE OR REFER TO PERMISSIBLE ENERGY LEVELS OF AN ORBITING ELECTRON	4	4	0	2	14	0	0

SEMICONDUCTOR  
DIODES



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

0Y-TSK

	SPC 003	SPC 007	SPC U08	SPC 009	SPC 010	SPC 011	SPC 012
G 374 G1-21 DO YOU USE OR REFER TO FORBIDDEN ENERGY LEVELS OF AN ORBITING ELECTRON	4	5	0	4	14	0	0
G 375 G1-22 DO YOU USE OR REFER TO VALENCE ELECTRONS (THOSE IN THE OUTERMOST SHELL)	5	5	0	4	14	0	0
G 376 G1-23 DO YOU USE OR REFER TO ATOMIC NUMBER (TOTAL NUMBER OF ELECTRONS IN ATOM)	6	5	3	4	14	0	5
G 377 G1-24 DO YOU USE OR REFER TO SYMBOLS ON THE DIODE WHICH INDICATE THE CATHODE END	33	31	36	34	24	25	24
G 378 G1-25 DO YOU NEED TO KNOW WHICH MATERIALS ARE USED IN THE CONSTRUCTION OF DIODES SUCH AS GERMANIUM OR SILICON	13	14	6	7	19	8	5
G 379 G1-26 DO YOU NEED TO KNOW THAT SEMICONDUCTORS HAVE NEGATIVE TEMPERATURE COEFFICIENTS OF RESISTANCE (AS TEMPERATURE INCREASES RESISTANCE DECREASES)	16	17	11	16	16	8	10
G 380 G1-27 DO YOU USE OR REFER TO PN JUNCTION DIODE CHARACTERISTIC CURVES, SUCH AS VOLTAGE - CURRENT	8	8	3	11	14	0	5
G 381 G1-28 DO YOU DETERMINE WHETHER PN JUNCTION DIODES ARE FORWARD BIASED OR REVERSE BIASED WHEN YOU READ OR	15	15	14	16	16	8	14
G 382 G1-29 DO YOU USE OR REFER TO VALENCE BAND IN SEMICONDUCTOR MATERIALS	6	5	3	4	16	0	5
G 383 G1-30 DO YOU USE OR REFER TO FORBIDDEN BAND IN SEMICONDUCTOR MATERIALS	6	5	3	2	16	0	5
G 384 G1-31 DO YOU USE OR REFER TO CONDUCTION BAND IN SEMICONDUCTOR MATERIALS	6	5	0	4	16	0	0
G 385 G1-32 DO YOU USE OR REFER TO COVALENT BONDING IN SEMICONDUCTOR MATERIALS	6	5	3	4	16	0	5
G 386 G1-33 DO YOU USE OR REFER TO ELECTRON-HOLE PAIR CREATED IN SEMICONDUCTORS	5	5	0	4	16	0	0
G 387 G1-34 DO YOU USE OR REFER TO ELECTRON FLOW OR HOLE FLOW IN SEMICONDUCTORS	7	6	3	5	16	0	0
G 388 G1-35 DO YOU USE OR REFER TO DONOR IMPURITY IN SEMICONDUCTORS	6	5	0	4	16	0	0
G 389 G1-36 DO YOU USE OR REFER TO ACCEPTOR IMPURITY IN SEMICONDUCTORS	7	6	3	4	19	0	5
G 390 G1-37 DO YOU USE OR REFER TO P-TYPE SEMICONDUCTOR MATERIAL	16	15	19	16	22	3	24
G 391 G1-38 DO YOU USE OR REFER TO N-TYPE SEMICONDUCTOR MATERIAL	15	14	17	16	19	3	19
G 392 G1-39 DO YOU USE OR REFER TO MAJORITY CARRIERS IN SEMICONDUCTORS	6	5	0	4	16	0	0
G 393 G1-40 DO YOU USE OR REFER TO MINORITY CARRIERS IN SEMICONDUCTORS	6	5	0	4	16	0	0
G 394 G1-41 DO YOU USE OR REFER TO JUNCTION RECOMBINATION IN SEMICONDUCTORS	5	5	0	4	16	0	0
G 395 G1-42 DO YOU USE OR REFER TO DEPLETION REGION IN SEMICONDUCTORS	6	5	0	4	16	0	0
G 396 G1-43 DO YOU USE OR REFER TO RELATIONSHIP BETWEEN BARRIER WIDTH AND DIFFERENCE OF POTENTIAL	6	6	0	5	16	0	0



TASK GROUP SUMMARY  
PERCENT METERS PERFORMING

DY-TSK

	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
G 397 G1-44 DO YOU USE OR REFER TO THE 10:1 BACK TO FRONT RESISTANCE RATIO FOR DIODES	12	13	3	18	14	8	0
G 398 G1-45 DO YOU USE OR REFER TO BARRIER HEIGHT IN SEMICONDUCTORS	4	4	0	4	14	0	0
G 399 G1-46 DO YOU USE OR REFER TO DIODE SUBSTITUTION INFORMATION	18	18	14	16	19	14	10
G 400 G1-47 DO YOU USE OR REFER TO MAXIMUM AVERAGE FORWARD CURRENT DIODE RATINGS	11	13	3	13	16	8	0
G 401 G1-48 DO YOU USE OR REFER TO PEAK RECURRENT FORWARD CURRENT DIODE RATINGS	9	11	3	9	16	6	0
G 402 G1-49 DO YOU USE OR REFER TO MAXIMUM SURGE CURRENT DIODE RATINGS	10	12	3	13	16	6	0
G 403 G1-50 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE DIODE RATINGS	10	11	6	9	16	8	0
G 404 G2-01 DO YOU WORK WITH TRANSISTORS IN YOUR PRESENT JOB*	50	49	42	52	46	36	29
G 405 G2-02 DO YOU INSPECT TRANSISTORS	48	48	39	50	46	33	29
G 406 G2-03 DO YOU REMOVE OR REPLACE TRANSISTORS	47	48	36	50	43	36	29
G 407 G2-04 DO YOU CHECK TRANSISTORS USING AN INSTRUMENT	45	47	33	48	43	36	24
G 408 G2-05 DO YOU USE OR REFER TO EMITTER - BASE (EB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	39	39	33	39	35	31	29
G 409 G2-06 DO YOU USE OR REFER TO COLLECTOR - BASE (CB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	34	33	31	32	35	22	24
G 410 G2-07 DO YOU USE OR REFER TO EMITTER - COLLECTOR (EC) RESISTANCE MEASUREMENTS	34	33	31	34	35	19	24
G 411 G2-08 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE EMITTER - BASE JUNCTION	14	15	6	13	24	8	10
G 412 G2-09 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE COLLECTOR - BASE JUNCTION	14	15	3	11	27	8	5
G 413 G2-10 DO YOU USE OR REFER TO THE PHYSICAL SIZE OF THE TRANSISTOR STRUCTURE (COLLECTOR, BASE AND EMITTER)	28	29	17	25	30	25	10
G 414 G2-11 DO YOU USE OR REFER TO LEAKAGE CURRENT (ICBO) IN A TRANSISTOR	17	16	11	14	24	8	10
G 415 G2-12 DO YOU USE OR REFER TO TRANSISTOR SCHEMATIC SYMBOLS	44	44	39	43	38	33	29
G 416 G2-13 DO YOU USE OR REFER TO TRANSISTOR NOTATION SUCH AS 31, 02, 03, ETC	45	44	42	45	38	33	33
G 417 G2-14 DO YOU USE OR REFER TO TRANSISTOR SUBSTITUTION INFORMATION	28	28	22	20	27	17	14
G 418 G2-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE TRANSISTOR BASE CURRENT IS NORMALLY SIGNIFICANTLY	17	19	3	16	22	14	5
G 419 G2-16 DO YOU USE THE INFORMATION THAT THE EFFECT OF EMITTER BASE VOLTAGE ON BASE CURRENT IS THE CONTROLLING FACTOR FOR	18	18	14	13	24	11	19
G 420 G2-17 DO YOU USE THE GENERAL RULE THAT LEAKAGE CURRENT (ICHO) IN A TRANSISTOR INCREASES AS TEMPERATURE INCREASES	15	16	6	13	22	8	5
G 421 G2-18 DO YOU USE OR REFER TO TRANSISTOR CHARACTERISTIC CURVES	4	8	6	5	22	3	5

TRANSISTORS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 003	SPC 007	SPC U08	SPC 009	SPC 010	SPC 011	SPC 012
G 422 G2-19 DO YOU USE OR REFER TO BETA TRANSISTOR GAINS	6	5	3	4	19	0	5
G 423 G2-20 DO YOU USE OR REFER TO ALPHA TRANSISTOR GAINS	6	5	3	4	19	0	5
G 424 G2-21 DO YOU USE OR REFER TO GAMMA TRANSISTOR GAINS	6	5	3	4	19	0	5
G 425 G2-22 DO YOU CALCULATE BETA TRANSISTOR GAINS	4	2	3	0	16	0	5
G 426 G2-23 DO YOU CALCULATE ALPHA TRANSISTOR GAINS	4	2	3	0	16	0	5
G 427 G2-24 DO YOU CALCULATE GAMMA TRANSISTOR GAINS	4	2	3	0	16	0	5
G 428 G3-01 DO YOU WORK WITH TRANSISTOR AMPLIFIERS IN YOUR PRESENT JOB	18	18	14	14	22	11	5
G 429 G3-02 DO YOU INSPECT TRANSISTOR AMPLIFIERS	18	20	6	18	22	11	0
G 430 G3-03 DO YOU ALIGN OR ADJUST TRANSISTOR AMPLIFIERS	10	11	3	13	14	3	0
G 431 G3-04 DO YOU TROUBLESHOOT TO THE AMPLIFIER CIRCUIT LEVEL	15	17	6	20	22	6	0
G 432 G3-05 DO YOU TROUBLESHOOT TO AMPLIFIER COMPONENTS	16	18	6	18	22	6	0
G 433 G3-06 DO YOU REMOVE OR REPLACE THE COMPLETE AMPLIFIER	17	18	8	16	22	8	5
G 434 G3-07 DO YOU REMOVE OR REPLACE AMPLIFIER COMPONENTS	16	17	8	18	22	3	5
G 435 G3-08 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A CHANGE IN BASE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN	4	4	0	2	16	0	0
G 436 G3-09 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN	6	5	3	4	16	0	0
G 437 G3-10 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A CHANGE IN BASE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN	4	4	0	4	14	0	0
G 438 G3-11 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN	6	5	3	4	14	0	0
G 439 G3-12 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN BASE CURRENT WHICH RESULTS FROM AN INPUT SIGNAL	4	4	0	4	14	0	0
G 440 G3-13 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN	4	4	0	2	16	0	0
G 441 G3-14 DO YOU USE THE LOAD-LINE METHOD OF ANALYSIS IN YOUR CIRCUIT ANALYSIS (THIS METHOD REQUIRES YOU TO PLOT A QUIESCENT POINT) FOR A TRANSISTOR	7	7	0	4	16	3	0
G 442 G3-15 DO YOU USE OR REFER TO THE OPERATING POINT FOR A PARTICULAR TRANSISTOR	4	3	0	0	16	0	0
G 443 G3-16 DO YOU CALCULATE THE SPECIFIC QUIESCENT POINT FOR A PARTICULAR TRANSISTOR	10	11	3	13	16	3	0
G 444 G3-17 DO YOU MEASURE VOLTAGE GAIN USED IN THE COMMON EMITTER CONFIGURATION	8	8	3	7	16	3	0
G 445 G3-18 DO YOU MEASURE CURRENT GAIN USED IN THE COMMON EMITTER CONFIGURATION	9	10	3	9	16	3	0
G 446 G3-19 DO YOU MEASURE POWER GAIN USED IN THE COMMON EMITTER CONFIGURATION	4	4	0	0	16	3	0
G 447 G3-20 DO YOU CALCULATE THE VOLTAGE GAIN FOR SPECIFIC TRANSISTORS USING A FORMULA THAT IS, DO YOU DIVIDE THE CHANGE							

TRANSISTOR  
AMPLIFIERS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
G 448 G3-21 DO YOU CALCULATE THE CURRENT GAIN FOR SPECIFIC TRANSISTORS USING A FORMULA THAT IS, DO YOU DIVIDE THE	4	3	0	0	16	0	0
G 449 G3-22 DO YOU CALCULATE THE POWER GAIN FOR A SPECIFIC TRANSISTOR USING A FORMULA THAT IS, DO YOU MULTIPLY THE	3	2	0	0	14	0	0
G 450 G3-23 DO YOU NEED TO KNOW THAT MORE COLLECTOR CURRENT IS GENERATED WITH LESS COLLECTOR VOLTAGE AS TEMPERATURE	4	5	0	0	14	3	0
G 451 G3-24 DO YOU COMPUTE THE STATIC OPERATING POINT EQ3 OF A TRANSISTOR AT DIFFERENT TEMPERATURES	3	2	0	0	14	0	0
G 452 G3-25 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH	6	5	0	2	16	3	0
G 453 G3-26 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH SELF-	5	5	0	0	16	3	0
G 454 G3-27 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH	7	6	6	2	16	3	0
G 455 G3-28 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH	6	5	3	2	16	3	0
G 456 G3-29 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH	6	5	3	2	16	3	0
G 457 G3-30 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH	7	6	3	4	16	3	0
G 458 G3-31 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM EMITTER (SWAMPING) RESISTOR STABILIZATION	6	6	0	4	16	0	0
G 459 G3-32 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM SELF-BIAS STABILIZATION	6	5	0	2	16	0	0
G 460 G3-33 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THERMISTOR STABILIZATION	8	8	3	5	16	0	0
G 461 G3-34 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM FORWARD BIAS DIODE STABILIZATION	7	7	0	5	16	0	0
G 462 G3-35 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM REVERSE BIAS DIODE STABILIZATION	7	7	0	5	16	0	0
G 463 G3-36 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM DOUBLE DIODE STABILIZATION	6	6	0	4	16	0	0
G 464 G3-37 DO YOU IDENTIFY AMPLITUDE DISTORTION FOR TRANSISTOR CIRCUITS	5	5	0	4	11	3	0
G 465 G3-38 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF AMPLITUDE DISTORTION	7	8	0	5	14	3	0



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK		SPC U03	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
G 466	G3-39 DO YOU IDENTIFY FREQUENCY DISTORTION FOR TRANSISTOR CIRCUITS	6	6	0	5	11	0	0
G 467	G3-40 DO YOU IDENTIFY PHASE DISTORTION FOR TRANSISTOR CIRCUITS	4	5	0	5	11	0	0
G 468	G3-41 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF PHASE DISTORTION	4	5	0	4	14	0	0
G 469	G3-42 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF FREQUENCY DISTORTION	5	5	0	4	11	0	0
G 470	G3-43 DO YOU NEED TO KNOW THE DEGENERATIVE EFFECTS ON THE CIRCUIT CAUSED BY CHANGING EMITTER RESISTANCE FOR	4	5	0	5	11	0	0
G 471	G3-44 DO YOU DETERMINE THE CLASS OF OPERATION FOR AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	7	8	0	9	14	3	0
G 472	G3-45 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	2	2	0	2	8	0	0
G 473	G3-46 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	12	13	6	13	16	6	0
G 474	G3-47 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY CIRCUITS	2	2	0	0	8	0	0
G 475	G3-48 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	4	5	0	5	8	3	0
G 476	G3-49 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	3	3	0	4	8	0	0
H 477	H1-01 DO YOU USE OR REFER TO VARACTORS	7	7	3	4	14	6	5
H 478	H1-02 DO YOU USE OR REFER TO TUNNEL DIODES	7	8	0	7	14	6	0
H 479	H1-03 DO YOU USE OR REFER TO FIELD EFFECT TRANSISTORS (FET)	19	20	17	21	16	14	24
H 480	H1-04 DO YOU USE OR REFER TO UNIJUNCTION TRANSISTORS	14	15	11	16	14	11	14
H 481	H1-05 DO YOU USE OR REFER TO ZENER DIODES	46	49	42	48	38	39	43
H 482	H1-06 DO YOU USE OR REFER TO INTEGRATED CIRCUITS	45	49	39	43	46	36	43
H 483	H2-01 IN YOUR PRESENT JOB DO YOU WORK WITH POWER SUPPLIES	50	48	50	52	49	28	48
H 484	H2-02 DO YOU INSPECT POWER SUPPLIES	46	44	50	50	35	28	48
H 485	H2-03 DO YOU CLEAN POWER SUPPLIES	43	42	42	52	30	25	38
H 486	H2-04 DO YOU ALIGN OR ADJUST POWER SUPPLIES	32	29	39	38	24	8	33
H 487	H2-05 DO YOU TROUBLESHOOT TO POWER SUPPLY CIRCUIT LEVEL	38	37	36	43	32	19	29
H 488	H2-06 DO YOU TROUBLESHOOT TO POWER SUPPLY COMPONENTS	35	35	31	38	30	22	24
H 489	H2-07 DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES	36	35	39	39	30	17	38
H 490	H2-08 DO YOU REMOVE OR REPLACE POWER SUPPLY COMPONENTS	34	33	31	38	30	17	29
H 491	H2-09 DO YOU WORK WITH HALF-WAVE RECTIFIERS	25	23	31	25	19	11	24
H 492	H2-10 DO YOU WORK WITH FULL-WAVE RECTIFIERS OTHER THAN BRIDGE RECTIFIERS	25	24	28	25	19	11	19
H 493	H2-11 DO YOU WORK WITH BRIDGE RECTIFIERS	32	31	36	30	22	19	29
H 494	H2-12 DO YOU WORK WITH THREE-PHASE RECTIFIERS	13	12	8	13	19	3	5
H 495	H2-13 DO YOU USE OR REFER TO INPUT VOLTAGE	37	38	33	39	38	19	24
H 496	H2-14 DO YOU USE OR REFER TO INPUT FREQUENCY	19	18	19	23	19	11	14
H 497	H2-15 DO YOU USE OR REFER TO PEAK OUTPUT VOLTAGE	23	23	22	21	24	14	14
H 498	H2-16 DO YOU USE OR REFER TO AVERAGE OUTPUT VOLTAGE	22	22	22	23	24	11	14
H 499	H2-17 DO YOU USE OR REFER TO RIPPLE AMPLITUDE	7	7	6	4	14	6	10
H 500	H2-18 DO YOU USE OR REFER TO RIPPLE FREQUENCY	6	5	3	4	16	3	5

SOLID-STATE  
SPECIAL PURPOSE  
DEVICES

POWER SUPPLIES



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

	SPC U03	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
501 H2-19 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE	12	12	8	7	22	14	10
502 H2-20 DO YOU USE OR REFER TO SHAPE OF OUTPUT WAVEFORMS	14	12	22	13	16	6	14
503 H2-21 DO YOU USE OR REFER TO EFFECTIVE OUTPUT VOLTAGE	22	20	25	21	22	11	14
504 H2-22 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE FILTERS	19	15	31	18	19	8	24
505 H2-23 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE FILTERS	13	11	19	13	19	6	14
506 H2-24 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE INPUT L-TYPE FILTERS	11	10	11	13	16	3	5
507 H2-25 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE INPUT L-TYPE FILTERS	10	8	11	11	16	3	5
508 H2-26 DO YOU WORK WITH CIRCUITS WHICH EMPLOY LC PI-TYPE FILTERS	6	5	3	5	16	3	0
509 H2-27 DO YOU WORK WITH CIRCUITS WHICH EMPLOY RC PI-TYPE FILTERS	7	5	6	5	16	3	5
510 H2-28 DO YOU WORK WITH CIRCUITS WHICH EMPLOY DON'T REMEMBER WHICH TYPE OF FILTER	21	22	11	29	19	11	14
511 H2-29 DO YOU HAVE THE OPTION OF REPLACING ONE TYPE OF FILTER WITH A DIFFERENT TYPE FILTER	5	4	3	4	14	0	0
512 H3-01 DO YOU WORK WITH OSCILLATORS IN YOUR PRESENT JOB	8	6	11	7	8	3	9
513 H3-02 DO YOU INSPECT OSCILLATORS	7	5	8	5	8	6	5
514 H3-03 DO YOU ALIGN OR ADJUST OSCILLATORS	4	4	6	4	8	0	5
515 H3-04 DO YOU REMOVE OR REPLACE COMPLETE OSCILLATORS	5	4	6	5	8	3	0
516 H3-05 DO YOU REMOVE OR REPLACE OSCILLATOR COMPONENTS	4	4	6	4	8	3	0
517 H3-06 DO YOU TROUBLESHOOT TO OSCILLATOR CIRCUIT LEVEL	4	4	6	4	8	3	0
518 H3-07 DO YOU TROUBLESHOOT TO OSCILLATOR COMPONENTS	4	4	6	4	8	3	0
519 H3-08 DO YOU USE OR REFER TO FEEDBACK	4	4	6	4	8	0	5
520 H3-09 DO YOU USE OR REFER TO FREQUENCY DETERMINING DEVICES (FDD)	2	2	0	2	8	0	0
521 H3-10 DO YOU USE OR REFER TO AMPLITUDE STABILITY	3	3	3	2	8	0	5
522 H3-11 DO YOU USE OR REFER TO FREQUENCY STABILITY	2	2	0	0	8	0	0
523 H3-12 DO YOU USE OR REFER TO DAMPING	3	3	0	4	8	0	0
524 H3-13 DO YOU USE OR REFER TO REGENERATIVE FEEDBACK	3	3	0	4	8	0	0
525 H3-14 DO YOU USE OR REFER TO PIEZOELECTRIC EFFECT	2	2	0	0	8	0	0
526 H3-15 DO YOU USE OR REFER TO CRITICAL DAMPING	2	2	0	0	8	0	0
527 H3-16 DO YOU USE OR REFER TO UNDER DAMPING	2	2	0	2	8	0	0
528 H3-17 DO YOU USE OR REFER TO OVER DAMPING	2	2	0	2	8	0	0
529 H3-18 DO YOU WORK WITH OSCILLATORS WHICH USE LC TANK CIRCUITS AS FDD	3	2	6	2	8	0	5
530 H3-19 DO YOU WORK WITH OSCILLATORS WHICH USE RC NETWORKS AS FDD	4	2	6	2	8	0	5
531 H3-20 DO YOU WORK WITH OSCILLATORS WHICH USE CRYSTALS AS FDD	3	2	3	0	8	0	0
532 H3-21 DO YOU WORK WITH OSCILLATORS WHICH USE DON'T REMEMBER WHICH TYPE OF FDD	4	5	3	4	8	3	0
533 H3-22 DO YOU WORK WITH SERIES HARTLEY SINUSOIDAL OSCILLATORS	2	2	0	0	8	0	0

OSCILLATORS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK		SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012	
M 534	M3-23 DO YOU WORK WITH SHUNT HARTLEY SINUSOIDAL OSCILLATORS	2	2	0	0	0	8	0	0
M 535	M3-24 DO YOU WORK WITH COLPITTS SINUSOIDAL OSCILLATORS	2	2	0	0	0	8	0	0
M 536	M3-25 DO YOU WORK WITH CLAPP SINUSOIDAL OSCILLATORS	2	2	0	0	0	8	0	0
M 537	M3-26 DO YOU WORK WITH BUTLER SINUSOIDAL OSCILLATORS	2	2	0	0	0	8	0	0
M 538	M3-27 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF OSCILLATORS	4	4	3	4	5	5	3	0
I 539	I1-01 DO YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB	11	12	8	18	8	6	5	
I 540	I1-02 DO YOU INSPECT WAVE GENERATING OR SHAPING CIRCUITS	6	5	6	9	8	0	5	
I 541	I1-03 DO YOU ALIGN OR ADJUST WAVE GENERATING OR SHAPING CIRCUITS	5	5	6	7	8	0	5	MULTIVIBRATORS
I 542	I1-04 DO YOU CALIBRATE WAVE GENERATING OR SHAPING CIRCUITS	4	4	3	5	8	0	0	
I 543	I1-05 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUITS	6	5	6	9	8	0	0	
I 544	I1-06 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUIT COMPONENTS	5	4	8	5	8	0	5	
I 545	I1-07 DO YOU REMOVE OR REPLACE COMPLETE WAVE GENERATING OR SHAPING CIRCUITS	3	3	3	4	8	0	0	
I 546	I1-08 DO YOU REMOVE OR REPLACE WAVE GENERATING OR SHAPING COMPONENTS	3	2	3	0	8	0	0	
I 547	I1-09 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN LC TANK CIRCUITS	2	2	3	0	8	0	5	
I 548	I1-10 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN RC NETWORKS	2	2	3	0	8	0	5	
I 549	I1-11 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN CRYSTALS	2	2	0	0	8	0	0	
I 550	I1-12 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN DON'T REMEMBER WHICH TYPE OF FDU	6	7	3	7	8	6	0	
I 551	I1-13 DO YOU WORK WITH ASTABLE MULTIVIBRATORS	7	8	6	11	8	3	5	
I 552	I1-14 DO YOU WORK WITH MONOSTABLE MULTIVIBRATORS	8	9	6	14	8	3	5	
I 553	I1-15 DO YOU WORK WITH BISTABLE MULTIVIBRATORS	8	9	6	14	8	3	5	
I 554	I1-16 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE MULTIVIBRATORS	4	5	0	4	8	6	0	
I 555	I2-01 DO YOU WORK WITH LIMITERS OR CLAMPERS IN YOUR PRESENT JOB	6	5	8	7	8	0	5	
I 556	I2-02 DO YOU WORK WITH SERIES DIODE LIMITERS	5	5	6	5	8	0	5	
I 557	I2-03 DO YOU WORK WITH SHUNT DIODE LIMITERS	3	4	0	4	8	0	0	LIMITERS AND CLAMPERS
I 558	I2-04 DO YOU WORK WITH LIMITERS WITH BIAS	2	2	0	0	8	0	0	
I 559	I2-05 DO YOU WORK WITH ZENER DIODE LIMITERS	4	4	3	4	8	0	0	
I 560	I2-06 DO YOU WORK WITH TRANSISTOR LIMITERS	4	5	3	5	8	0	0	
I 561	I2-07 DO YOU WORK WITH DON'T KNOW WHICH TYPE OF LIMITERS	4	4	3	5	8	0	0	
I 562	I2-08 DO YOU WORK WITH BASIC DIODE CLAMPING CIRCUITS	2	2	0	0	2	8	0	
I 563	I2-09 DO YOU WORK WITH DIODE CLAMPING CIRCUITS WITH BIAS	2	2	3	0	8	0	5	
I 564	I2-10 DO YOU WORK WITH DON'T KNOW WHICH TYPE OF CLAMPING CIRCUIT	5	5	3	7	8	0	0	
I 565	I3-01 IN YOUR PRESENT JOB DO YOU WORK ON EQUIPMENT WHICH CONTAINS ELECTRON TUBES	51	55	42	46	57	44	33	
I 566	I3-02 DO YOU CHECK ELECTRON TUBES TO SEE IF THEY ARE GOOD	49	54	36	43	57	47	29	ELECTRON TUBES

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

Dy-TSk

SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
1	567	13-03	00	YOU	USE	TUBE TESTERS TO CHECK ELECTRON TUBES
1	568	13-04	00	YOU	USE	MULTIMETERS TO CHECK ELECTRON TUBES
1	569	13-05	00	YOU	USE	SCOPES TO CHECK ELECTRON TUBES
1	570	13-06	00	YOU	USE	SUBSTITUTION TO CHECK ELECTRON TUBES
1	571	13-07	00	YOU	USE	OR REFER TO CUTOFF
1	572	13-08	00	YOU	USE	OR REFER TO PEAK INVERSE VOLTAGE RATING
1	573	13-09	00	YOU	USE	OR REFER TO PEAK CURRENT RATING
1	574	13-10	00	YOU	USE	OR REFER TO TRANSIT TIME
1	575	13-11	00	YOU	USE	OR REFER TO PLATE DISSIPATION RATING
1	576	13-12	00	YOU	USE	OR REFER TO SATURATION
1	577	13-13	00	YOU	USE	OR REFER TO DC PLATE RESISTANCE
1	578	13-14	00	YOU	COMPUTE	ACTUAL VALUES OF THE DC PLATE RESISTANCE FOR ELECTRON TUBES
1	579	13-15	00	YOU	USE	OR REFER TO PLATE VOLTAGE
1	580	13-16	00	YOU	USE	OR REFER TO PLATE CURRENT
1	581	13-17	00	YOU	USE	OR REFER TO GRID VOLTAGE
1	582	13-18	00	YOU	USE	OR REFER TO GRID CURRENT
1	583	13-19	00	YOU	USE	OR REFER TO CATHODE VOLTAGE
1	584	13-20	00	YOU	USE	OR REFER TO CATHODE CURRENT
1	585	13-21	00	YOU	USE	OR REFER TO THE TRIODE AMPLIFICATION FACTOR (THE AMPLIFICATION FACTOR FOR TRIODES IS DEFINED AS
1	586	13-22	00	YOU	CALCULATE	ACTUAL VALUES OF TRIODE AMPLIFICATION FACTORS
1	587	13-23	00	YOU	USE	OR REFER TO MULTIGRID (TETRODE, PENTODE, ETC) AMPLIFICATION FACTORS
1	588	13-24	00	YOU	USE	OR REFER TO ELECTRON TUBE TRANSDUCANCE (G, WHICH IS MEASURED IN MHOS)
1	589	13-25	00	YOU	CALCULATE	ACTUAL VALUES OF ELECTRON TUBE TRANSDUCANCES
1	590	13-26	00	YOU	USE	OR REFER TO THE ELECTRON TUBE PARAMETER CALLED AC PLATE RESISTANCE
1	591	13-27	00	YOU	CALCULATE	ACTUAL VALUES OF AC PLATE RESISTANCE
1	592	13-28	00	YOU	USE	OR REFER TO ELECTRON TUBE INTERELECTRODE CAPACITANCE
1	593	13-29	00	YOU	USE	OR REFER TO CHARACTERISTIC CURVES IN YOUR WORK WITH ELECTRON TUBES
1	594	13-30	00	YOU	USE	CHARACTERISTIC CURVES TO SELECT PLATE VOLTAGE FOR A SPECIFIED BIAS
1	595	13-31	00	YOU	USE	CHARACTERISTIC CURVES TO SELECT PLATE CURRENT FOR A SPECIFIED BIAS
1	596	13-32	00	YOU	USE	CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR CUTOFF
1	597	13-33	00	YOU	USE	CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR SATURATION







TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012	
J 624 J2-09 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROSTATIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES	11	13	3	16	5	6	0	
J 625 J2-10 DO YOU USE OR REFER TO PHOSPHOR SCREENS	18	18	19	27	5	6	19	
J 626 J2-11 DO YOU USE OR REFER TO AQUADAG COATINGS	5	5	3	5	3	3	5	
J 627 J2-12 DO YOU USE OR REFER TO ELECTRON OPTICS	7	5	8	4	5	6	14	
J 628 J2-13 DO YOU USE OR REFER TO PERSISTENCE	4	3	3	0	8	3	5	
J 629 J2-14 DO YOU USE OR REFER TO DECAY TIMES	6	5	6	4	4	3	10	
J 630 J2-15 DO YOU USE OR REFER TO FLUORESCENCE	10	8	11	7	8	3	14	
J 631 J2-16 DO YOU USE OR REFER TO PHOSPHORESCENCE	10	9	11	11	8	6	14	
J 632 J3-01 DO YOU WORK ON TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	2	1	0	2	5	0	0	
J 633 J3-02 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	1	0	0	0	3	0	0	
J 634 J3-03 DO YOU PERFORM TASKS ON FREQUENCY MIXERS	1	0	0	0	3	0	0	
J 635 J3-04 DO YOU USE OR REFER TO THE HETERODYNING OF SIGNALS	1	0	0	0	3	0	0	HETERODYNING, MODULATION, AND DEMODULATION
J 636 J3-05 DO YOU WORK WITH TRANSMIT OR RECEIVE SYSTEMS IN YOUR WORK ON TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0	
J 637 J3-06 DO YOU PERFORM TASKS ON REACTANCE MODULATORS	1	0	0	0	3	0	0	
J 638 J3-07 DO YOU PERFORM TASKS ON MODULATED OSCILLATORS	1	0	0	0	3	0	0	
K 639 K1-01 DO YOU WORK ON AM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	1	0	0	0	3	0	0	
K 639 K1-02 DO YOU INSPECT AM TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0	
K 640 K1-03 DO YOU CLEAN AM TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0	
K 641 K1-04 DO YOU ALIGN OR ADJUST AM TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0	AM SYSTEMS
K 642 K1-05 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0	
K 643 K1-06 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE COMPONENTS	1	0	0	0	3	0	0	
K 644 K1-07 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0	
K 645 K1-08 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE COMPONENTS	1	0	0	0	3	0	0	
K 646 K1-09 DO YOU PERFORM TASKS ON RF OSCILLATORS	1	0	0	0	3	0	0	
K 647 K1-10 DO YOU PERFORM TASKS ON RF AMPLIFIERS	1	0	0	0	3	0	0	
K 648 K1-11 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	1	0	0	0	3	0	0	
K 649 K1-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	1	0	0	0	3	0	0	
K 650 K1-13 DO YOU PERFORM TASKS ON LOCAL OSCILLATORS	1	0	0	0	3	0	0	
K 651 K1-14 DO YOU PERFORM TASKS ON IF AMPLIFIERS	1	0	0	0	3	0	0	
K 652 K1-15 DO YOU PERFORM TASKS ON DETECTORS	1	0	0	0	3	0	0	
K 653 K1-16 DO YOU PERFORM TASKS ON DON'T REMEMBER WHICH AM STAGE	1	0	0	0	3	0	0	
K 654 K1-17 DO YOU USE OR REFER TO AMPLITUDE STABILIZATION IN TRANSMITTERS	1	0	0	0	3	0	0	
K 655 K1-18 DO YOU USE OR REFER TO FREQUENCY STABILIZATION IN TRANSMITTERS	1	0	0	0	3	0	0	
K 656 K1-19 DO YOU USE OR REFER TO SENSITIVITY OF RECEIVERS	1	0	0	0	3	0	0	
K 657 K1-20 DO YOU USE OR REFER TO SELECTIVITY OF RECEIVERS	1	0	0	0	3	0	0	
K 658 K1-21 DO YOU USE OR REFER TO 2ND HARMONIC DISTORTION	1	0	0	0	3	0	0	
K 659 K1-22 DO YOU USE OR REFER TO BANDPASS DISTORTION	1	0	0	0	3	0	0	
K 660 K1-23 DO YOU USE OR REFER TO SQUARE LAW DISTORTION	1	0	0	0	3	0	0	

PCT MBRS RESPONDING YES TO ITEMS- SELECTED GPS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSA									
	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012		
K 661 K1-24 DO YOU USE OR REFER TO CO-CHANNEL INTERFERENCE	1	0	0	0	3	0	0	FM SYSTEMS	
K 662 K1-25 DO YOU USE OR REFER TO IMAGE FREQUENCIES IN RECEIVERS	1	0	0	0	3	0	0		
K 663 K1-26 DO YOU USE OR REFER TO SIGNAL TO IMAGE RATIOS OR IMAGE REJECTION RATIOS	1	0	0	0	3	0	0		
K 664 K1-27 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM TRANSMITTER SCHEMATIC DIAGRAMS	1	0	0	0	3	0	0		
K 665 K1-28 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM RECEIVER SCHEMATIC DIAGRAMS	1	0	0	0	3	0	0		
K 666 K2-01 DO YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	1	1	0	2	3	0	0		
K 667 K2-02 DO YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0	FM SYSTEMS	
K 668 K2-03 DO YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0		
K 669 K2-04 DO YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0		
K 670 K2-05 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0		
K 671 K2-06 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE COMPONENTS	1	0	0	0	3	0	0		
K 672 K2-07 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0		
K 673 K2-08 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE COMPONENTS	1	0	0	0	3	0	0	FM SYSTEMS	
K 674 K2-09 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	1	0	0	0	3	0	0		
K 675 K2-10 DO YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS	1	0	0	0	3	0	0		
K 676 K2-11 DO YOU PERFORM TASKS ON DRIVERS (INTERMEDIATE AMPLIFIERS)	1	1	0	2	3	0	0		
K 677 K2-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	1	0	0	0	3	0	0		
K 678 K2-13 DO YOU PERFORM TASKS ON RF AMPLIFIERS	1	0	0	0	3	0	0		
K 679 K2-14 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	1	0	0	0	3	0	0	FM SYSTEMS	
K 680 K2-15 DO YOU PERFORM TASKS ON IF AMPLIFIERS	1	0	0	0	3	0	0		
K 681 K2-16 DO YOU PERFORM TASKS ON LIMITERS	1	0	0	0	3	0	0		
K 682 K2-17 DO YOU PERFORM TASKS ON FREQUENCY DISCRIMINATORS	1	0	0	0	3	0	0		
K 683 K2-18 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSMITTERS	1	0	0	0	3	0	0		
K 684 K2-19 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM RECEIVERS	1	0	0	0	3	0	0		
K 685 K3-01 DO YOU CONVERT DECIMAL (BASE 10) NUMBERS TO OCTAL (BASE 8) NUMBERS	3	2	3	2	8	0	5	NUMBERING SYSTEMS	
K 686 K3-02 DO YOU CONVERT DECIMAL NUMBERS TO BINARY (BASE 2) NUMBERS	5	5	6	5	11	0	10		
K 687 K3-03 DO YOU CONVERT OCTAL NUMBERS TO DECIMAL NUMBERS	4	3	3	5	8	0	5		
K 688 K3-04 DO YOU CONVERT OCTAL NUMBERS TO BINARY NUMBERS	3	3	0	4	8	0	0		
K 689 K3-05 DO YOU CONVERT BINARY NUMBERS TO DECIMAL NUMBERS	4	4	3	4	11	0	5		
K 690 K3-06 DO YOU CONVERT BINARY NUMBERS TO OCTAL NUMBERS	3	3	0	4	8	0	0		
K 691 K3-07 DO YOU ADD BINARY NUMBERS TO GET A SUM	6	5	3	5	14	0	5	NUMBERING SYSTEMS	
K 692 K3-08 DO YOU SUBTRACT BINARY NUMBERS USING THE END-AROUND- CARRY METHOD	3	4	0	2	11	0	0		
K 693 K3-09 DO YOU SUBTRACT BINARY NUMBERS USING THE DIRECT SUBTRACTION METHOD	4	5	0	4	11	0	0		

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DV-TSK

		SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012		
K 694	K3-12 DO YOU ADD OCTAL NUMBERS TO GET A SUM	5	4	6	5	8	0	5		
L 695	L1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO LOGIC FUNCTIONS	4	3	8	2	8	0	10		
L 696	L1-02 DO YOU CONSTRUCT TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	2	2	0	2	8	0	0	LOGIC FUNCTIONS	
L 697	L1-03 DO YOU CONSTRUCT TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	3	3	0	4	8	0	0		
L 698	L1-04 DO YOU CONSTRUCT TRUTH TABLES FOR AND OR LOGIC SYMBOLS WITH STATE INDICATORS	2	2	0	2	8	0	0		
L 699	L1-05 DO YOU CONSTRUCT TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS OR GATES	2	2	0	2	8	0	0		
L 700	L1-06 DO YOU USE OR REFER TO TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	3	3	3	2	8	0	0		
L 701	L1-07 DO YOU USE OR REFER TO TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	3	3	3	2	8	0	0		
L 702	L1-08 DO YOU USE OR REFER TO TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	3	3	3	2	8	0	0		
L 703	L1-09 DO YOU USE OR REFER TO TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS	3	3	3	2	8	0	0		
L 704	L1-10 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR AND GATES	4	3	6	2	8	0	5		
L 705	L1-11 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR OR GATES	4	3	6	2	8	0	5		
L 706	L1-12 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR NAND OR NOR GATES	4	3	6	2	8	0	5		
L 707	L1-13 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR EXCLUSIVE OR GATES	4	3	6	2	8	0	5		
L 708	L2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO BOOLEAN EQUATIONS, LOGIC DIAGRAM, OR LOGIC	2	2	3	2	0	0	5		
L 709	L2-02 DO YOU DRAW LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUITS	1	0	0	0	3	0	0		
L 710	L2-03 DO YOU CONSTRUCT TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	1	0	0	0	3	0	0	BOOLEAN EQUATIONS	
L 711	L2-04 DO YOU DRAW LOGIC DIAGRAMS FROM GIVEN BOOLEAN EQUATIONS	1	0	0	0	3	0	0		
L 712	L2-05 DO YOU MEASURE INPUTS OR OUTPUTS OF LOGIC GATES	2	1	3	0	3	0	5		
L 713	L2-06 DO YOU DEVELOP OR ANALYZE BOOLEAN EQUATIONS IN THE PROCESS OF TROUBLESHOOTING DIGITAL CIRCUITS	1	0	0	0	3	0	0		
L 714	L2-07 DO YOU ANALYZE LOGIC CIRCUITS BY USING BOOLEAN ALGEBRA	1	0	0	0	3	0	0		
L 715	L2-08 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUIT GATES	1	1	0	0	3	0	0		
L 716	L2-09 DO YOU USE OR REFER TO TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	1	1	0	0	3	0	0		
L 717	L2-10 DO YOU USE OR REFER TO LOGIC DIAGRAMS CONSISTING OF MORE THAN ONE GATE	1	1	0	0	3	0	0		
L 718	L2-11 DO YOU COMPUTE SUM AND CARRY EXPRESSIONS FOR SERIAL HALF OR FULL ADDER LOGIC DIAGRAMS	1	0	0	0	3	0	0		



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DI-TSK	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
L 719 L2-12 DO YOU TRACE DATA FLOW THROUGH PARALLEL FULL ADDER LOGIC DIAGRAMS	1	0	0	0	3	0	0
L 720 L2-13 DO YOU WORK WITH ASTABLE (FREE RUNNING) MULTIVIBRATORS	2	1	3	0	3	0	5
L 721 L2-14 DO YOU WORK WITH BISTABLE (FLIP-FLOP) MULTIVIBRATORS	2	2	3	0	3	0	5
L 722 L2-15 DO YOU WORK WITH MONOSTABLE (ONE-SHOT) MULTIVIBRATORS	2	2	0	0	3	0	0
L 723 L2-16 DO YOU USE OR REFER TO FLIP-FLOP MULTIVIBRATOR SYMBOLS	2	2	0	0	3	0	0
L 724 L2-17 DO YOU USE OR REFER TO SINGLE-SHOT MULTIVIBRATOR SYMBOLS	1	1	0	0	3	0	0
L 725 L2-18 DO YOU USE OR REFER TO FLIP-FLOP CIRCUIT DIAGRAMS	1	1	0	0	3	0	0
L 726 L2-19 DO YOU USE OR REFER TO FLIP-FLOP TRUTH TABLES	1	1	0	0	3	0	0
L 727 L2-20 DO YOU USE OR REFER TO COMPLEMENTED FLIP-FLOP LOGIC SYMBOLS	1	1	0	0	3	0	0
L 728 L2-21 DO YOU USE OR REFER TO COMPLEMENTING FLIP-FLOP LOGIC SYMBOLS	1	1	0	0	3	0	0
L 729 L2-22 DO YOU MEASURE OUTPUT WAVESHAPES OF LOGIC CIRCUITS	2	1	3	0	3	0	5
L 730 L2-23 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTED FLIP-FLOP SCHEMATIC DIAGRAMS	1	1	0	0	3	0	0
L 731 L2-24 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS	1	1	0	0	3	0	0
L 732 L2-25 DO YOU CONSTRUCT TRUTH TABLES FOR J-K FLIP-FLOP LOGIC SYMBOLS	1	0	0	0	3	0	0
L 733 L3-01 DO YOU WORK WITH DIGITAL COUNTERS IN YOUR PRESENT JOB	6	5	6	4	8	3	5
L 734 L3-02 DO YOU USE OR REFER TO UP-COUNTERS	5	5	3	5	8	3	5
L 735 L3-03 DO YOU USE OR REFER TO DOWN-COUNTERS	4	5	3	5	8	0	5
L 736 L3-04 DO YOU USE OR REFER TO SERIAL COUNTERS	4	3	6	4	8	0	5
L 737 L3-05 DO YOU USE OR REFER TO PARALLEL COUNTERS	3	2	6	2	8	0	5
L 738 L3-06 DO YOU USE OR REFER TO RING COUNTERS	2	2	3	0	8	0	5
L 739 L3-07 DO YOU USE OR REFER TO DECADE COUNTERS	3	2	3	0	8	0	5
L 740 L3-08 DO YOU USE OR REFER TO COUNT DETECT CIRCUITS	3	2	6	0	8	0	5
L 741 L3-09 DO YOU USE OR REFER TO DOWN CLOCKS	3	3	3	4	8	0	5
L 742 L3-10 DO YOU USE OR REFER TO UP CLOCKS	4	5	3	4	8	3	5
L 743 L3-11 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	2	1	3	0	5	0	5
L 744 L3-12 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	2	1	3	0	5	0	5
L 745 L3-13 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DECADE COUNTERS	2	2	3	0	5	0	5
L 746 L3-14 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF RING COUNTERS	2	1	3	0	5	0	5
L 747 L3-15 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTER	2	1	3	0	5	0	5
L 748 L3-16 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	2	1	3	0	5	0	5

COUNTERS



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMINGDY-TSK  
SPC SPC SPC SPC SPC SPC SPC SPC  
003 007 008 009 010 011 012

L 749	L3-17 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF COUNTERS	3	2	6	2	5	0	5	
L 750	L3-18 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	2	1	3	0	5	0	5	
L 751	L3-19 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENT-	2	1	3	0	5	0	5	
L 752	L3-20 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE	2	1	3	0	5	0	5	
L 753	L3-21 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR OTHER TYPES OF COUNTERS	2	1	3	0	5	0	5	
L 754	L3-22 DO YOU CONSTRUCT TRUTH TABLES FROM LOGIC DIAGRAMS OF DECADE COUNTERS	2	1	3	0	5	0	5	
L 755	L3-23 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP IN RING COUNTERS FOR SPECIFIC INPUT PULSES	2	1	3	0	5	0	5	
L 756	L3-24 DO YOU DETERMINE THE APPROPRIATE AND GATE NECESSARY IN COUNT DETECT CIRCUITS TO INDICATE A REQUIRED COUNT	2	1	3	0	5	0	5	
M 757	M1-01 DO YOU WORK WITH SAWTOOTH WAVE GENERATORS	8	6	14	7	11	0	10	
M 758	M1-02 DO YOU WORK WITH TRAPEZOIDAL WAVE GENERATORS	4	3	3	2	11	0	0	
M 759	M1-03 DO YOU WORK WITH PULSED OSCILLATORS WITH REGENERATIVE FEEDBACK	6	4	8	2	11	0	5	
M 760	M1-04 DO YOU WORK WITH PULSED OSCILLATORS WITHOUT REGENERATIVE FEEDBACK	6	3	11	2	11	0	10	
M 761	M1-05 DO YOU WORK WITH BLOCKING OSCILLATORS	6	4	11	4	11	0	10	
M 762	M1-06 DO YOU USE OR REFER TO RISE TIME	7	5	8	4	11	0	10	
M 763	M1-07 DO YOU USE OR REFER TO FALL OR FLYBACK TIME	7	6	6	5	11	0	5	
M 764	M1-08 DO YOU USE OR REFER TO SLEEP TIME	11	8	19	7	11	0	19	
M 765	M1-09 DO YOU USE OR REFER TO ELECTRICAL LENGTH OF SAWTOOTH WAVEFORMS	9	8	11	7	11	0	5	
M 766	M1-10 DO YOU USE OR REFER TO PHYSICAL LENGTH OF SAWTOOTH WAVEFORMS	7	6	6	5	11	0	5	
M 767	M1-11 DO YOU USE OR REFER TO LINEAR SLOPE OF SAWTOOTH WAVEFORMS	7	6	6	5	11	0	5	
M 768	M1-12 DO YOU USE OR REFER TO GATE LENGTH OF SAWTOOTH WAVEFORMS	5	5	0	4	11	0	0	
M 769	M2-01 DO YOU USE SIGNAL GENERATORS IN YOUR PRESENT JOB	4	4	0	5	8	0	0	
M 770	M2-02 DO YOU PERFORM OPERATIONAL CHECKS WHILE USING SIGNAL GENERATORS	3	3	0	4	8	0	0	
M 771	M2-03 DO YOU PERFORM PERIODIC MAINTENANCE SUCH AS ADJUSTING, ALIGNING, OR CALIBRATING WHILE USING SIGNAL	2	1	0	0	8	0	0	
M 772	M2-04 DO YOU TROUBLESHOOT TO AN ASSEMBLY OR SUBASSEMBLY WHILE USING SIGNAL GENERATORS	2	1	0	0	8	0	0	
M 773	M2-05 DO YOU TROUBLESHOOT TO THE SMALLEST REPLACEABLE COMPONENT WHILE USING SIGNAL GENERATORS	1	0	0	0	5	0	0	
M 774	M2-06 DO YOU USE AUDIO SINE-WAVE GENERATORS	2	1	0	0	5	0	0	

TIMING CIRCUITS

USE OF SIGNAL  
GENERATORS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

SPC 003 SPC 007 SPC 008 SPC 009 SPC 010 SPC 011 SPC 012

M 775 M2-07 DO YOU USE AUDIO NON-SINUSOIDAL WAVE GENERATORS SUCH AS SQUARE WAVE, TRIANGLE, PULSE, OR SPIKE  
M 776 M2-08 DO YOU USE RF GENERATORS LESS THAN 1,000 MH  
M 777 M2-09 DO YOU USE RF GENERATORS GREATER THAN 1,000 MH  
M 778 M2-10 DO YOU USE OTHER SPECIAL PURPOSE OR MULTI-FUNCTION GENERATORS

## GENERATORS

M 779 M3-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH ALTERNATING CURRENT OR DIRECT CURRENT MOTORS OR

M 780 M3-02 DO YOU INSPECT MOTORS

M 781 M3-03 DO YOU CLEAN OR LUBRICATE MOTORS

M 782 M3-04 DO YOU OPERATE MOTORS

M 783 M3-05 DO YOU REMOVE OR REPLACE COMPLETE MOTORS

M 784 M3-06 DO YOU REMOVE OR REPLACE MOTOR PARTS

M 785 M3-07 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF MOTORS

M 786 M3-08 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF MOTORS

M 787 M3-09 DO YOU PERFORM ANY TASKS ON FIELD COILS

M 788 M3-10 DO YOU PERFORM ANY TASKS ON ARMATURES

M 789 M3-11 DO YOU PERFORM ANY TASKS ON ROTORS

M 790 M3-12 DO YOU PERFORM ANY TASKS ON BRUSHES

M 791 M3-13 DO YOU PERFORM ANY TASKS ON SLIP RINGS

M 792 M3-14 DO YOU PERFORM ANY TASKS ON COMMUTATORS

M 793 M3-15 DO YOU PERFORM ANY TASKS ON POLE PIECES

M 794 M3-16 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OF THE FORCE OR TORQUE CREATED BY A MOTOR

M 795 M3-17 DO YOU DETERMINE OR MEASURE THE DIRECTION OF THE MECHANICAL FORCE OR TORQUE CREATED BY A MOTOR

M 796 M3-18 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OR DIRECTION OF THE INDUCED VOLTAGE IN MOTORS

M 797 M3-19 DO YOU WORK WITH SYNCHRONOUS MOTORS

M 798 M3-20 DO YOU WORK WITH INDUCTION MOTORS

M 799 M3-21 DO YOU WORK WITH SPLIT-PHASE MOTORS

M 800 M3-22 DO YOU WORK WITH SOME COMBINATION OF THE ABOVE MOTORS

M 801 M3-23 DO YOU INSPECT GENERATORS

M 802 M3-24 DO YOU CLEAN OR LUBRICATE GENERATORS

M 803 M3-25 DO YOU OPERATE GENERATORS

M 804 M3-26 DO YOU REMOVE OR REPLACE COMPLETE GENERATORS

M 805 M3-27 DO YOU REMOVE OR REPLACE GENERATOR PARTS

M 806 M3-28 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF GENERATORS

## GENERATORS

M 807 M3-29 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF

M 808 M1-01 DO YOU WORK WITH METERS IN YOUR PRESENT JOB

M 809 M1-02 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF PERMANENT MAGNETS

M 810 M1-03 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF MOVING COILS

MOTORS AND  
GENERATORS

METER MOVEMENTS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
N 811 N1-04 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF SPIRAL SPRINGS	14	15	8	11	19	11	14
N 812 N1-05 DO YOU READ METER SCALES	69	67	69	71	59	58	71
N 813 N1-06 DO YOU EXTEND THE RANGE OF AMMETERS	18	15	19	14	24	6	24
N 814 N1-07 DO YOU ZERO OHMMETERS	70	68	72	73	59	58	76
N 815 N1-08 DO YOU ZERO AMMETERS	35	35	31	30	32	31	33
N 816 N1-09 DO YOU EXTEND THE RANGE OF VOLTMETERS	25	19	36	21	24	14	43
N 817 N1-10 DO YOU USE OR REFER TO VOLTMETER SENSITIVITY (EXPRESSED IN UNITS OF OHMS PER VOLT)	35	33	31	38	22	22	33
N 818 N2-01 DO YOU WORK WITH SATURABLE REACTORS OR MAGNETIC AMPLIFIERS IN YOUR PRESENT JOB	1	1	0	0	5	0	0
N 819 N2-02 DO YOU INSPECT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	1	1	0	0	5	0	0
N 820 N2-03 DO YOU CLEAN MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	1	1	0	0	5	0	0
N 821 N2-04 DO YOU ADJUST MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	1	1	0	0	5	0	0
N 822 N2-05 DO YOU TROUBLESHOOT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	1	1	0	0	5	0	0
N 823 N2-06 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	1	1	0	0	5	0	0
N 824 N2-07 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIER OR SATURABLE REACTOR COMPONENTS	1	1	0	0	5	0	0
N 825 N2-08 DO YOU USE OR REFER TO HYSTERESIS CURVES OR LOOPS	1	1	0	0	5	0	0
N 826 N2-09 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE REACTORS	1	1	0	0	5	0	0
N 827 N2-10 DO YOU MEASURE OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE REACTORS	1	1	0	0	5	0	0
N 828 N2-11 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS FOR MAGNETIC AMPLIFIERS	1	0	0	0	3	0	0
N 829 N2-12 DO YOU USE OR REFER TO COERCIVE FORCE IN SATURABLE REACTORS	1	0	0	0	3	0	0
N 830 N2-13 DO YOU USE OR REFER TO RESIDUAL MAGNETISM IN SATURABLE REACTORS	1	0	0	0	3	0	0
N 831 N2-14 DO YOU USE OR REFER TO FLUX DENSITY IN SATURABLE REACTORS	1	0	0	0	3	0	0
N 832 N2-15 DO YOU USE OR REFER TO POINT OF SATURATION IN SATURABLE REACTORS	1	0	0	0	3	0	0
N 833 N2-16 DO YOU USE OR REFER TO SATURABLE REACTOR SCHEMATIC SYMBOLS	1	0	0	0	3	0	0
N 834 N3-01 DO YOU WORK WITH WAVESHAPING CIRCUITS IN YOUR PRESENT JOB	4	4	3	7	3	3	0
N 835 N3-02 DO YOU USE OR REFER TO TRANSIENT INTERVALS	1	1	0	2	3	0	0
N 836 N3-03 DO YOU USE OR REFER TO PULSE WIDTH (PW)	1	0	0	0	3	0	0
N 837 N3-04 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	1	0	0	0	3	0	0

WAVESHAPING  
CIRCUITS



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSA

	SPC 003	SPC 007	SPC U08	SPC 009	SPC 010	SPC 011	SPC 012
N 838 N3-05 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRE)	1	0	0	0	3	0	0
N 839 N3-06 DO YOU USE OR REFER TO DIFFERENTIATING CIRCUITS	1	1	0	2	0	0	0
N 840 N3-07 DO YOU USE OR REFER TO INTEGRATING CIRCUITS	2	2	0	4	3	0	0
N 841 N3-08 DO YOU USE OR REFER TO THE CLASSIFICATION OF TIME CONSTANTS (TC) AS LONG, MEDIUM, OR SHORT	1	0	0	0	3	0	0
N 842 N3-09 DO YOU DETERMINE WHETHER AN LR OR RC CIRCUIT IS DIFFERENTIATING OR INTEGRATING BASED ON THE TIME CONSTANT	1	1	0	2	3	0	0
N 843 N3-10 DO YOU WORK WITH SQUARE WAVE GENERATORS	3	3	0	5	3	3	0
N 844 N3-11 DO YOU WORK WITH RECTANGULAR WAVE GENERATORS	2	2	0	4	3	3	0
0 845 01-01 DO YOU WORK ON SINGLE SIDEBAND SYSTEMS IN YOUR PRESENT JOB	1	0	0	0	3	0	0
0 846 01-02 DO YOU INSPECT SSB TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0
0 847 01-03 DO YOU CLEAN SSB TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0
0 848 01-04 DO YOU ALIGN SSB TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0
0 849 01-05 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0
0 850 01-06 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE COMPONENTS	1	0	0	0	3	0	0
0 851 01-07 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE SYSTEMS	1	0	0	0	3	0	0
0 852 01-08 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE COMPONENTS	1	0	0	0	3	0	0
0 853 01-09 DO YOU PERFORM TASKS ON SSB AUDIO AMPLIFIERS	1	0	0	0	3	0	0
0 854 01-10 DO YOU PERFORM TASKS ON SSB BALANCED MODULATORS	1	0	0	0	3	0	0
0 855 01-11 DO YOU PERFORM TASKS ON SSB CARRIER OSCILLATORS	1	0	0	0	3	0	0
0 856 01-12 DO YOU PERFORM TASKS ON SSB LC FILTERS	1	0	0	0	3	0	0
0 857 01-13 DO YOU PERFORM TASKS ON SSB CRYSTAL FILTERS	1	0	0	0	3	0	0
0 858 01-14 DO YOU PERFORM TASKS ON SSB MECHANICAL FILTERS	1	0	0	0	3	0	0
0 859 01-15 DO YOU PERFORM TASKS ON SSB OSCILLATORS	1	0	0	0	3	0	0
0 860 01-16 DO YOU PERFORM TASKS ON SSB MIXERS	1	0	0	0	3	0	0
0 861 01-17 DO YOU PERFORM TASKS ON SSB DRIVERS	1	0	0	0	3	0	0
0 862 01-18 DO YOU PERFORM TASKS ON SSB POWER AMPLIFIERS	1	0	0	0	3	0	0
0 863 01-19 DO YOU PERFORM TASKS ON SSB HF AMPLIFIERS	1	0	0	0	3	0	0
0 864 01-20 DO YOU PERFORM TASKS ON SSB FREQUENCY CONVERTERS	1	0	0	0	3	0	0
0 865 01-21 DO YOU PERFORM TASKS ON SSB IF AMPLIFIERS	1	0	0	0	3	0	0
0 866 01-22 DO YOU PERFORM TASKS ON SSB DEMODULATORS	1	0	0	0	3	0	0
0 867 01-23 DO YOU PERFORM TASKS ON SSB DON'T REMEMBER WHICH SSB SYSTEM STAGES	1	0	0	0	3	0	0
0 868 01-24 DO YOU USE OR REFER TO SELECTIVE FADING	1	0	0	0	3	0	0
0 869 01-25 DO YOU USE OR REFER TO PEAK POWER	1	0	0	0	3	0	0
0 870 01-26 DO YOU USE OR REFER TO FREQUENCY STABILITY	1	0	0	0	3	0	0
0 871 01-27 DO YOU USE OR REFER TO RESPONSE CURVES FOR BANDWIDTH FILTERS	1	0	0	0	3	0	0
0 872 01-28 DO YOU CALCULATE PEAK POWER OR EFFECTIVE POWER OF SSB TRANSMITTERS	1	0	0	0	3	0	0

SINGLE SIDEBAND  
SYSTEMS



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 003	SPC 007	SPC U08	SPC U09	SPC 010	SPC 011	SPC 012
0 873 01-29 00 YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB TRANSMITTER SCHEMATIC DIAGRAMS	1	0	0	0	3	0	0
0 874 01-30 00 YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB RECEIVER SCHEMATIC DIAGRAMS	1	0	0	0	3	0	0
0 875 02-01 00 YOU WORK ON PULSE MODULATION SYSTEMS IN YOUR PRESENT JOB	1	0	0	0	5	0	0
0 876 02-02 00 YOU INSPECT PULSE MODULATION SYSTEMS	1	0	0	0	5	0	0
0 877 02-03 00 YOU CLEAN PULSE MODULATION SYSTEMS	1	0	0	0	5	0	0
0 878 02-04 00 YOU ALIGN PULSE MODULATION SYSTEMS	1	0	0	0	5	0	0
0 879 02-05 00 YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS	1	0	0	0	5	0	0
0 880 02-06 00 YOU TROUBLESHOOT TO PULSE MODULATION SYSTEM COMPONENTS	1	0	0	0	5	0	0
0 881 02-07 00 YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS	1	0	0	0	5	0	0
0 882 02-08 00 YOU REMOVE OR REPLACE PULSE MODULATION SYSTEM COMPONENTS	1	0	0	0	5	0	0
0 883 02-09 00 YOU WORK ON PULSE-AMPLITUDE MODULATION (PAM) SYSTEMS	1	0	0	0	5	0	0
0 884 02-10 00 YOU WORK ON PULSE-DURATION MODULATION (PDM) SYSTEMS	1	0	0	0	5	0	0
0 885 02-11 00 YOU WORK ON PULSE-POSITION MODULATION (PPM) SYSTEMS	1	0	0	0	5	0	0
0 886 02-12 00 YOU WORK ON PULSE-CODE MODULATION (PCM) SYSTEMS	1	0	0	0	5	0	0
0 887 02-13 00 YOU WORK ON LINE PULSING MODULATION SYSTEMS	1	0	0	0	5	0	0
0 888 02-14 00 YOU WORK ON DON'T REMEMBER WHICH TYPE OF MODULATION SYSTEM	2	1	0	0	5	3	0
0 889 02-15 00 YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER SUPPLIES	1	0	0	0	5	0	0
0 890 02-16 00 YOU PERFORM TASKS ON PULSE MODULATION SYSTEM CHARGING CHOKES AND CHARGING DIODES	1	0	0	0	5	0	0
0 891 02-17 00 YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE FORMING NETWORKS	1	0	0	0	5	0	0
0 892 02-18 00 YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TIMERS	2	1	0	0	5	3	0
0 893 02-19 00 YOU PERFORM TASKS ON PULSE MODULATION SYSTEM SWITCHES SUCH AS GAS THYRATRONS	1	0	0	0	5	0	0
0 894 02-20 00 YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE TRANSFORMERS	1	0	0	0	5	0	0
0 895 02-21 00 YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TRANSMITTER TUBES	1	0	0	0	5	0	0
0 896 02-22 00 YOU PERFORM TASKS ON PULSE MODULATION SYSTEM RF AMPLIFIERS	1	0	0	0	5	0	0
0 897 02-23 00 YOU PERFORM TASKS ON PULSE MODULATION SYSTEM FREQUENCY CONVERTERS	1	0	0	0	5	0	0
0 898 02-24 00 YOU PERFORM TASKS ON PULSE MODULATION SYSTEM IF AMPLIFIERS	1	0	0	0	5	0	0
0 899 02-25 00 YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DETECTORS	1	0	0	0	5	0	0

PULSE MODULATION

SYSTEMS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

OY-TSA

SPC SPC SPC SPC SPC SPC SPC SPC SPC SPC  
003 007 008 009 010 011 012

0 900 02-26 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM  
VIDEO AMPLIFIERS  
0 901 02-27 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM  
POWER VIDEO AMPLIFIERS  
0 902 02-28 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM  
DON'T REMEMBER WHICH PULSE MODULATION SYSTEM STAGES  
0 903 02-29 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY  
(PRF)  
0 904 02-30 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)  
0 905 02-31 DO YOU USE OR REFER TO PULSE WIDTH (PW)  
0 906 02-32 DO YOU USE OR REFER TO PULSE SHAPE  
0 907 02-33 DO YOU USE OR REFER TO PEAK POWER  
0 908 02-34 DO YOU USE OR REFER TO AVERAGE POWER  
0 909 02-35 DO YOU CALCULATE PULSE RECURRENCE TIME (PRT) OR PULSE  
RECURRENCE FREQUENCY (PRF)  
0 910 02-36 DO YOU MEASURE PULSE RECURRENCE TIME (PRT) OR PULSE  
RECURRENCE FREQUENCY (PRF)  
0 911 02-37 DO YOU USE FORMULAS TO CALCULATE AVERAGE POWER OR  
PEAK POWER OF PULSE MODULATION TRANSMIT SYSTEMS  
0 912 02-38 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE  
MODULATION TRANSMITTER SCHEMATIC DIAGRAMS  
0 913 02-39 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE  
MODULATION RECEIVER SCHEMATIC DIAGRAMS  
0 914 03-01 DO YOU WORK WITH ANTENNAS IN YOUR PRESENT JOB  
0 915 03-02 DO YOU INSPECT ANTENNAS  
0 916 03-03 DO YOU CLEAN ANTENNAS  
0 917 03-04 DO YOU PHYSICALLY ALIGN ANTENNAS  
0 918 03-05 DO YOU ELECTRICALLY ALIGN ANTENNAS  
0 919 03-06 DO YOU TROUBLESHOOT TO ANTENNAS  
0 920 03-07 DO YOU TROUBLESHOOT TO ANTENNA COMPONENTS  
0 921 03-08 DO YOU REMOVE OR INSTALL ANTENNAS  
0 922 03-09 DO YOU REMOVE OR REPLACE COMPONENTS OF ANTENNAS  
0 923 03-10 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING  
REPRESENTATIONS OF E OR ELECTRIC FIELD LINES  
0 924 03-11 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING  
REPRESENTATIONS OF H OR MAGNETIC FIELD LINES  
0 925 03-12 DO YOU DETERMINE THE DIRECTION OF THE MAGNETIC LINES  
IN RELATION TO THE ELECTRIC LINES OF FORCE FOR ANTENNAS  
0 926 03-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT  
ANTENNAS WHICH ARE OF CORRECT LENGTH (HALF-WAVE) ACT AS  
0 927 03-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS  
WHICH ARE LONGER THAN A HALF-WAVE ACT AS INDUCTIVE LOADS  
0 928 03-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS  
WHICH ARE SHORTER THAN A HALF-WAVE ACT AS CAPACITIVE LOADS

ANTENNAS

ACT WARS RESPONDING YES TO ITEMS- SELECTED GPS

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

OY-TSK

QY-TSK	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
0 929 03-16 00 YOU WORK WITH HERTZ ANTENNAS	1	0	0	0	0	3	0
0 930 03-17 00 YOU WORK WITH MARCONI ANTENNAS	1	0	0	0	0	3	0
0 931 03-18 00 YOU WORK WITH BROADSIDE ARRAYS	1	0	0	0	0	3	0
0 932 03-19 00 YOU WORK WITH END-FIRE ARRAYS	1	0	0	0	0	3	0
0 933 03-20 00 YOU WORK WITH CARDIOID ARRAYS	1	0	0	0	0	3	0
0 934 03-21 00 YOU WORK WITH COLLINER ARRAYS	1	0	0	0	0	3	0
0 935 03-22 00 YOU USE OR REFER TO THE TERM ELECTROMAGNETIC INDUCTION FIELDS WHEN WORKING WITH ANTENNAS	1	0	0	0	0	3	0
0 936 03-23 00 YOU MEASURE ELECTROMAGNETIC INDUCTION FIELDS OF ANTENNAS	1	0	0	0	0	3	0
0 937 03-24 00 YOU USE OR REFER TO THE TERM ELECTROMAGNETIC RADIATION FIELDS WHEN WORKING WITH ANTENNAS	1	0	0	0	0	3	0
0 938 03-25 00 YOU MEASURE ELECTROMAGNETIC RADIATION FIELDS OF ANTENNAS	1	0	0	0	0	3	0
0 939 03-26 00 YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA RADIATION	1	0	0	0	0	3	0
0 940 03-27 00 YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA INDUCTION FIELD	1	0	0	0	0	3	0
0 941 03-28 00 ARE ANY OF THE ANTENNAS YOU WORK ON LINEARLY POLARIZED	1	0	0	0	0	3	0
0 942 03-29 00 ARE ANY OF THE ANTENNAS YOU WORK ON CIRCULARLY POLARIZED	1	0	0	0	0	3	0
0 943 03-30 00 YOU MEASURE OR DETERMINE THE POLARITY OF ANTENNAS YOU WORK ON	1	0	0	0	0	3	0
0 944 03-31 00 DO YOU CONSTRUCT, OR MAKE THE CALCULATIONS NECESSARY TO CONSTRUCT, ANTENNAS OF CORRECT LENGTH FOR ELEMENTS	1	0	0	0	0	3	0
0 945 03-32 00 THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS	1	0	0	0	0	3	0
0 946 03-33 00 THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS DIRECTORS	1	0	0	0	0	3	0
0 947 03-34 00 THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS REFLECTORS	1	0	0	0	0	3	0
0 948 03-35 00 THE ANTENNA ARRAYS YOU WORK WITH CONTAIN DON'T REMEMBER WHAT KIND OF ELEMENTS	1	0	0	0	0	3	0
0 949 03-36 00 YOU WORK ON UNIDIRECTIONAL ANTENNAS	1	0	0	0	0	3	0
0 950 03-37 00 YOU WORK ON BIDIRECTIONAL ANTENNAS	1	0	0	0	0	3	0
0 951 03-38 00 YOU WORK ON DON'T REMEMBER THE DIRECTIONALITY	1	0	0	0	0	3	0
0 952 03-39 00 YOU WORK WITH ROTAR ANTENNA ARRAYS	1	0	0	0	0	3	0
P 953 P1-01 IN YOUR PRESENT JOB DO YOU WORK WITH TRANSMISSION LINES (TRANSMISSION LINES ARE DEFINED TO INCLUDE LEADS	3	3	0	4	3	0	0
P 954 P1-02 DO YOU REFER TO OR USE COPPER LOSS ON 12H LOSS IN TRANSMISSION LINES	2	2	0	0	0	3	0
P 955 P1-03 DO YOU REFER TO OR USE SKIN EFFECTS OF HIGH FREQUENCY CURRENTS IN TRANSMISSION LINES	1	0	0	0	0	3	0



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
P 956 PI-04 DO YOU REFER TO OR USE RADIATION LOSS IN TRANSMISSION LINES	1	0	0	0	3	0	0
P 957 PI-05 DO YOU USE OR REFER TO DIELECTRIC LOSS IN TRANSMISSION LINES	1	0	0	0	3	0	0
P 958 PI-06 DO YOU USE OR REFER TO LEAKAGE LOSSES IN TRANSMISSION LINES	1	0	0	0	3	0	0
P 959 PI-07 DO YOU WORK WITH TWISTED PAIR TRANSMISSION LINES	2	2	0	0	3	0	0
P 960 PI-08 DO YOU WORK WITH THIN LEAD TRANSMISSION LINES	2	2	0	0	3	0	0
P 961 PI-09 DO YOU WORK WITH OPEN TWO-WIRE TRANSMISSION LINES	1	1	0	0	3	0	0
P 962 PI-10 DO YOU WORK WITH FLEXIBLE COAXIAL CABLE TRANSMISSION LINES	2	2	0	0	3	0	0
P 963 PI-11 DO YOU WORK WITH RIGID COAXIAL CABLE TRANSMISSION LINES	1	1	0	0	3	0	0
P 964 PI-12 DO YOU TROUBLESHOOT TRANSMISSION LINES	2	2	0	2	3	0	0
P 965 PI-13 DO YOU ANALYZE VOLTAGE OR CURRENT WAVEFORMS IN TRANSMISSION LINES TO DETERMINE THE TYPE OF TERMINATION	1	0	0	0	3	0	0
P 966 PI-14 DO YOU SELECT APPROPRIATE TRANSMISSION LINES TERMINATIONS TO ACHIEVE DESIRED WAVEFORMS	1	0	0	0	3	0	0
P 967 PI-15 DO YOU USE OR REFER TO SCHEMATIC SYMBOLS FOR LINE TERMINATIONS IN TERMS OF CIRCUIT TERMINATIONS	2	2	0	2	3	0	0
P 968 PI-16 DO YOU MEASURE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES	1	0	0	0	3	0	0
P 969 PI-17 DO YOU CALCULATE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES	1	0	0	0	3	0	0
P 970 PI-18 DO YOU PERFORM THE CALCULATIONS NECESSARY TO DETERMINE THE IMPEDANCE AND LENGTH OF QUARTER - WAVELENGTH	1	0	0	0	3	0	0
P 971 PI-19 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING MATCHING TRANSFORMERS	1	0	0	0	3	0	0
P 972 PI-20 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING DELTA MATCHING	1	0	0	0	3	0	0
P 973 PI-21 DO YOU SELECT THE TYPE OF TRANSMISSION LINE NEEDED FOR PARTICULAR JOBS WITHOUT REFERRING TO TECHNICAL DATA	1	0	0	0	3	0	0
P 974 PI-22 DO YOU USE OR REFER TO THE TERM CHARACTERISTIC IMPEDANCE (Z0) OF TRANSMISSION LINES	1	0	0	0	3	0	0
P 975 PI-23 DO YOU CALCULATE THE CHARACTERISTIC IMPEDANCE (Z0) OF TRANSMISSION LINES	1	0	0	0	3	0	0
P 976 PI-24 DO YOU USE OR REFER TO THE TERM CUTOFF FREQUENCY OF TRANSMISSION LINES	1	0	0	0	3	0	0
P 977 PI-25 DO YOU USE OR REFER TO THE TERM VELOCITY FACTOR (K) OF TRANSMISSION LINES	1	0	0	0	3	0	0
P 978 PI-26 DO YOU COMPUTE THE ELECTRICAL LENGTH OF TRANSMISSION LINES FOR PARTICULAR FREQUENCIES	1	0	0	0	3	0	0
P 979 PI-27 DO YOU CONSTRUCT TRANSMISSION LINES OF PARTICULAR ELECTRICAL LENGTH FOR GIVEN FREQUENCIES	1	0	0	0	3	0	0
P 980 PI-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT AS THE FREQUENCY INCREASES AND THE PHYSICAL LENGTH OF	1	0	0	0	3	0	0

CY-TSK



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 003	SPC 007	SPC 008	SPC 009	SPC U10	SPC 011	SPC 012
P 981 P1-29 DO YOU WORK WITH NONRESONANT (FLAT) TRANSMISSION LINES	1	1	0	2	3	0	0
P 982 P1-30 DO YOU WORK WITH RESONANT TRANSMISSION LINES	1	0	0	0	3	0	0
P 983 P1-31 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING STUB MATCHING	1	0	0	0	3	0	0
P 984 P2-01 DO YOU WORK WITH WAVEGUIDES OR CAVITY RESONATORS IN YOUR PRESENT JOB	1	0	0	0	3	0	0
P 985 P2-02 DO YOU INSPECT WAVEGUIDES OR CAVITY RESONATORS	1	0	0	0	3	0	0
P 986 P2-03 DO YOU CLEAN WAVEGUIDES OR CAVITY RESONATORS	1	0	0	0	3	0	0
P 987 P2-04 DO YOU BEND WAVEGUIDES OR CAVITY RESONATORS	1	0	0	0	3	0	0
P 988 P2-05 DO YOU TWIST WAVEGUIDES OR CAVITY RESONATORS	1	0	0	0	3	0	0
P 989 P2-06 DO YOU PRESSURIZE WAVEGUIDES OR CAVITY RESONATORS	1	0	0	0	3	0	0
P 990 P2-07 DO YOU PURGE WAVEGUIDES OR CAVITY RESONATORS	1	0	0	0	3	0	0
P 991 P2-08 DO YOU TROUBLESHOOT WAVEGUIDES OR CAVITY RESONATORS	1	0	0	0	3	0	0
P 992 P2-09 DO YOU REMOVE OR INSTALL COMPLETE WAVEGUIDES	1	0	0	0	3	0	0
P 993 P2-10 DO YOU REMOVE OR INSTALL WAVEGUIDE SECTIONS	1	0	0	0	3	0	0
P 994 P2-11 DO YOU REMOVE OR INSTALL DUMMY LOADS	1	0	0	0	3	0	0
P 995 P2-12 DO YOU REMOVE OR INSTALL E BENDS	1	0	0	0	3	0	0
P 996 P2-13 DO YOU REMOVE OR INSTALL M BENDS	1	0	0	0	3	0	0
P 997 P2-14 DO YOU REMOVE OR INSTALL OTHER BENDS	1	0	0	0	3	0	0
P 998 P2-15 DO YOU REMOVE OR INSTALL CHOKES JOINTS	1	0	0	0	3	0	0
P 999 P2-16 DO YOU REMOVE OR INSTALL ROTATING JOINTS	1	0	0	0	3	0	0
P1000 P2-17 DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS	1	0	0	0	3	0	0
P1001 P2-18 DO YOU REMOVE OR INSTALL BIDIRECTIONAL COUPLERS	1	0	0	0	3	0	0
P1002 P2-19 DO YOU USE OR REFER TO "A" WALL OF WAVEGUIDES	1	0	0	0	3	0	0
P1003 P2-20 DO YOU USE OR REFER TO "B" WALL OF WAVEGUIDES	1	0	0	0	3	0	0
P1004 P2-21 DO YOU USE OR REFER TO CUTOFF FREQUENCY OF WAVEGUIDES	1	0	0	0	3	0	0
P1005 P2-22 DO YOU USE OR REFER TO FREQUENCY-DETERMINING WALL OF WAVEGUIDES	1	0	0	0	3	0	0
P1006 P2-23 DO YOU USE OR REFER TO POWER-DETERMINING WALL OF WAVEGUIDES	1	0	0	0	3	0	0
P1007 P2-24 DO YOU USE OR REFER TO ELECTRIC FIELD BOUNDARY CONDITIONS	1	0	0	0	3	0	0
P1008 P2-25 DO YOU USE OR REFER TO MAGNETIC FIELD BOUNDARY CONDITIONS	1	0	0	0	3	0	0
P1009 P2-26 DO YOU USE OR REFER TO DUPLEXER FIELD BOUNDARY CONDITIONS	1	0	0	0	3	0	0
P1010 P2-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST WAVEGUIDES ARE MADE WITH A "B" WALL SIZE OF .7 WAVELENGTHS	1	0	0	0	3	0	0
P1011 P2-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST "A" WALLS RANGE FROM .2 TO .5 WAVELENGTHS IN SIZE, WITH .35	1	0	0	0	3	0	0
P1012 P2-29 ARE YOU CONCERNED WITH THE MATERIAL (SUCH AS BRASS) WHICH WAVEGUIDES ARE MADE OF	1	0	0	0	3	0	0
P1013 P2-30 DO YOU COMPUTE THE LENGTH OF A WAVEGUIDE FOR SPECIFIC INSTALLATION	1	0	0	0	3	0	0

WAVEGUIDES AND  
CAVITY RESONATORS



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

	SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012
DY-TSN							
P1038 P3-05 DO YOU USE OR REFER TO RF LOSSES IN EXTERNAL CIRCUITRY	1	0	0	0	3	0	0
P1039 P3-06 DO YOU USE OR REFER TO PRINCIPLE OF ELECTRON VELOCITY MODULATION	1	0	0	0	3	0	0
P1040 P3-07 DO YOU USE OR REFER TO ELECTRON BUNCHING	1	0	0	0	3	0	0
P1041 P3-08 DO YOU WORK WITH TWO-CAVITY KLYSTRONS	1	0	0	0	3	0	0
P1042 P3-09 DO YOU WORK WITH THREE-CAVITY KLYSTRONS	1	0	0	0	3	0	0
P1043 P3-10 DO YOU WORK WITH REFLEX KLYSTRONS	1	0	0	0	3	0	0
P1044 P3-11 DO YOU WORK WITH TRAVELING-WAVE TUBES (TWT)	1	0	0	0	3	0	0
P1045 P3-12 DO YOU WORK WITH NONDEGENERATIVE PARAMETRIC AMPLIFIERS	1	0	0	0	3	0	0
P1046 P3-13 DO YOU WORK WITH UP-CONVERTER PARAMETRIC AMPLIFIERS	1	0	0	0	3	0	0
P1047 P3-14 DO YOU WORK WITH MAGNETRONS	1	0	0	0	3	0	0
P1048 P3-15 DO YOU INSPECT KLYSTRONS OR TWT	1	0	0	0	3	0	0
P1049 P3-16 DO YOU CLEAN KLYSTRONS OR TWT	1	0	0	0	3	0	0
P1050 P3-17 DO YOU TUNE KLYSTRONS OR TWT ELECTRICALLY	1	0	0	0	3	0	0
P1051 P3-18 DO YOU TUNE KLYSTRONS OR TWT MECHANICALLY	1	0	0	0	3	0	0
P1052 P3-19 DO YOU PERFORM OPERATIONAL CHECKS OF KLYSTRONS OR TWT	1	0	0	0	3	0	0
P1053 P3-20 DO YOU TROUBLESHOOT KLYSTRONS OR TWT	1	0	0	0	3	0	0
P1054 P3-21 DO YOU REMOVE OR REPLACE COMPLETE KLYSTRON OR TWT	1	0	0	0	3	0	0
P1055 P3-22 DO YOU REMOVE OR REPLACE KLYSTRON OR TWT COMPONENTS	1	0	0	0	3	0	0
P1056 P3-23 DO YOU INSPECT PARAMETRIC AMPLIFIERS	1	0	0	0	3	0	0
P1057 P3-24 DO YOU CLEAN PARAMETRIC AMPLIFIERS	1	0	0	0	3	0	0
P1058 P3-25 DO YOU ADJUST PARAMETRIC AMPLIFIERS	1	0	0	0	3	0	0
P1059 P3-26 DO YOU TUNE PARAMETRIC AMPLIFIERS	1	0	0	0	3	0	0
P1060 P3-27 DO YOU PERFORM OPERATIONAL CHECKS OF PARAMETRIC AMPLIFIERS	1	0	0	0	3	0	0
P1061 P3-28 DO YOU TROUBLESHOOT PARAMETRIC AMPLIFIERS	1	0	0	0	3	0	0
P1062 P3-29 DO YOU REMOVE OR REPLACE COMPLETE PARAMETRIC AMPLIFIER	1	0	0	0	3	0	0
P1063 P3-30 DO YOU REMOVE OR REPLACE PARAMETRIC AMPLIFIER COMPONENTS	1	0	0	0	3	0	0
P1064 P3-31 DO YOU INSPECT MAGNETRONS	1	0	0	0	3	0	0
P1065 P3-32 DO YOU CLEAN MAGNETRONS	1	0	0	0	3	0	0
P1066 P3-33 DO YOU ADJUST MAGNETRONS	1	0	0	0	3	0	0
P1067 P3-34 DO YOU TUNE MAGNETRONS	1	0	0	0	3	0	0
P1068 P3-35 DO YOU PERFORM OPERATIONAL CHECKS OF MAGNETRONS	1	0	0	0	3	0	0
P1069 P3-36 DO YOU TROUBLESHOOT MAGNETRONS	1	0	0	0	3	0	0
P1070 P3-37 DO YOU REMOVE OR REPLACE COMPLETE MAGNETRON	1	0	0	0	3	0	0
P1071 P3-38 DO YOU REMOVE OR REPLACE MAGNETRON COMPONENTS	1	0	0	0	3	0	0
P1072 P3-39 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS COLLECTOR PLATES	1	0	0	0	3	0	0
P1073 P3-40 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER CAVITIES	1	0	0	0	3	0	0
P1074 P3-41 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER GRIDS	1	0	0	0	3	0	0



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSA

	SPC 003	SPC 007	SPC U08	SPC 009	SPC U10	SPC 011	SPC 012
P1075 P3-42 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS FEEDBACK LOOPS	1	0	0	0	3	0	0
P1076 P3-43 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS DRIFT SPACES	1	0	0	0	3	0	0
P1077 P3-44 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS RUNCHER GRIDS	1	0	0	0	3	0	0
P1078 P3-45 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS RUNCHER CAVITIES	1	0	0	0	3	0	0
P1079 P3-46 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CONTROL GRIDS	1	0	0	0	3	0	0
P1080 P3-47 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATHODES	1	0	0	0	3	0	0
P1081 P3-48 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON REFLECTOR (REFLECTOR) PLATES	1	0	0	0	3	0	0
P1082 P3-49 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRIDS	1	0	0	0	3	0	0
P1083 P3-50 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRID CAVITY GAPS	1	0	0	0	3	0	0
P1084 P3-51 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON RESONANT CAVITIES	1	0	0	0	3	0	0
P1085 P3-52 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON MAGNETIC COUPLING LOOPS	1	0	0	0	3	0	0
P1086 P3-53 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON FILAMENTS	1	0	0	0	3	0	0
P1087 P3-54 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON CATHODES	1	0	0	0	3	0	0
P1088 P3-55 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON OUTPUT LEADS	1	0	0	0	3	0	0
P1089 P3-56 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES FILAMENTS	1	0	0	0	3	0	0
P1090 P3-57 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES CATHODES	1	0	0	0	3	0	0
P1091 P3-58 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MODULATOR GRIDS	1	0	0	0	3	0	0
P1092 P3-59 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ANODES	1	0	0	0	3	0	0
P1093 P3-60 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES HELICES	1	0	0	0	3	0	0
P1094 P3-61 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES COLLECTORS	1	0	0	0	3	0	0
P1095 P3-62 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MAGNETS	1	0	0	0	3	0	0
P1096 P3-63 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ATTENUATORS	1	0	0	0	3	0	0
P1097 P3-64 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE CIRCULATORS	1	0	0	0	3	0	0
P1098 P3-65 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER SIGNAL CAVITIES	1	0	0	0	3	0	0



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK		SPC 003	SPC 007	SPC 008	SPC 009	SPC 010	SPC 011	SPC 012	
P1099	P3-66 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER IDLER CAVITIES	1	0	0	0	3	0	0	
P1100	P3-67 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER VARACTOR DIODES	1	0	0	0	3	0	0	
P1101	P3-68 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE ISOLATORS	1	0	0	0	3	0	0	
P1102	P3-69 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER REVERSE-BIAS BATTERIES	1	0	0	0	3	0	0	
P1103	P3-70 DO YOU PERFORM TASKS ON ANODES	1	0	0	0	3	0	0	
P1104	P3-71 DO YOU PERFORM TASKS ON ANODE COOLING PINS	1	0	0	0	3	0	0	
P1105	P3-72 DO YOU PERFORM TASKS ON COUPLING LOOPS	1	0	0	0	3	0	0	
P1106	P3-73 DO YOU PERFORM TASKS ON HEATER LEADS	1	0	0	0	3	0	0	
P1107	P3-74 DO YOU PERFORM TASKS ON RESONANT CAVITIES	1	0	0	0	3	0	0	
P1108	P3-75 DO YOU PERFORM TASKS ON CATMODES	1	0	0	0	3	0	0	
P1109	P3-76 DO YOU PERFORM TASKS ON MAGNETS	1	0	0	0	3	0	0	
Q1110	Q1-01 DO YOU USE OR REFER TO STORAGE REGISTERS	3	2	3	0	5	0	0	
Q1111	Q1-02 DO YOU USE OR REFER TO SHIFT REGISTERS	1	1	0	0	5	0	0	
Q1112	Q1-03 DO YOU USE OR REFER TO LOGIC SYMBOLS OF SHIFT REGISTERS	1	1	0	0	5	0	0	REGISTERS
Q1113	Q1-04 DO YOU USE OR REFER TO LOGIC SYMBOLS OF STORAGE REGISTERS	2	1	3	0	5	0	0	
Q1114	Q1-05 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	1	0	0	0	3	0	0	
Q1115	Q1-06 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF REGISTERS	1	0	0	0	3	0	0	
Q1116	Q1-07 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP OF A SHIFT REGISTER AFTER A SPECIFIED NUMBER OF SHIFT PULSES	1	0	0	0	3	0	0	
Q1117	Q2-01 DO YOU WORK WITH DIGITAL COUNTERS, REGISTERS, OR STORAGE DEVICES IN YOUR PRESENT JOB	2	1	6	0	3	0	5	
Q1118	Q2-02 DO YOU USE OR REFER TO DELAY LINES	1	0	3	0	3	0	5	
Q1119	Q2-03 DO YOU USE OR REFER TO MAGNETIC CORES	1	0	0	0	3	0	0	
Q1120	Q2-04 DO YOU USE OR REFER TO MAGNETIC DRUMS	1	0	0	0	3	0	0	
Q1121	Q2-05 DO YOU USE OR REFER TO MAGNETIC TAPES	2	0	3	0	5	0	5	
Q1122	Q2-06 DO YOU USE OR REFER TO ACCESS TIME OR SPEED OR MEMORY SYSTEMS	2	0	6	0	3	0	5	
Q1123	Q2-07 DO YOU USE OR REFER TO WORD CAPACITY OF MEMORY SYSTEMS	1	0	3	0	3	0	5	
Q1124	Q2-08 DO YOU USE OR REFER TO VOLATILITY OF MEMORY SYSTEMS	1	0	3	0	3	0	5	
Q1125	Q2-09 DO YOU USE OR REFER TO LOGIC SYMBOL OF DELAY LINES	1	0	0	0	3	0	0	
Q1126	Q3-01 IN YOUR PRESENT JOB, DO YOU WORK WITH DIGITAL-TO-ANALOG (D/A) CONVERTERS, ANALOG-TO-DIGITAL (A/D)	1	0	3	0	3	0	5	
Q1127	Q3-02 DO YOU COMPUTE OUTPUT VOLTAGES FOR ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS FOR GIVEN INPUT	1	0	0	0	3	0	0	DIGITAL TO ANALOG CONVERTERS
Q1128	Q3-03 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE COUNT IN ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A)	1	0	0	0	3	0	0	

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

SPC SPC SPC SPC SPC SPC SPC SPC  
003 007 008 009 010 011 012

Q1129	G3-04 DO YOU COMPUTE ANALOG VOLTAGES FOR GIVEN BINARY COUNTS IN ELECTRONIC DIGITAL-TO-ANALOG (D/A) CONVERTERS	1	0	0	0	3	0	0
Q1130	G3-05 DO YOU PERFORM SAMPLE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	1	0	0	0	3	0	0
Q1131	G3-06 DO YOU PERFORM HOLD FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	1	0	0	0	3	0	0
Q1132	G3-07 DO YOU PERFORM COMPARE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	1	0	0	0	3	0	0
Q1133	G3-08 DO YOU PERFORM DIGITIZE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	1	0	0	0	3	0	0
Q1134	G3-09 DO YOU PERFORM DON'T REMEMBER WHICH FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER	1	0	0	2	3	0	0
Q1135	G3-10 DO YOU USE OR REFER TO SAMPLE FUNCTION OF A/D CONVERTERS	1	0	0	0	3	0	0
Q1136	G3-11 DO YOU USE OR REFER TO HOLD FUNCTION OF A/D CONVERTERS	1	0	0	0	3	0	0
Q1137	G3-12 DO YOU USE OR REFER TO COMPARE FUNCTION OF A/D CONVERTERS	1	0	0	0	3	0	0
Q1138	G3-13 DO YOU USE OR REFER TO DIGITAL FUNCTION OF A/D CONVERTERS	1	0	0	0	3	0	0
Q1139	G3-14 DO YOU PERFORM ANY TASKS ON MECHANICAL ANALOG-TO-DIGITAL (A/D) CONVERTERS	1	0	0	0	3	0	0
R1140	R1-01 DO YOU WORK WITH PHANTASTRON CIRCUITRY IN YOUR PRESENT JOB	1	0	0	0	3	0	0
R1141	R2-01 IN YOUR PRESENT JOB DO YOU WORK WITH SCHMITT TRIGGER CIRCUITS	5	4	6	9	3	0	5
R1142	R2-02 DO YOU TRACE DATA FLOW THROUGH SCHMITT TRIGGER SCHEMATIC DIAGRAMS	3	3	3	7	3	0	5
R1143	R2-03 DO YOU USE OR REFER TO SCHMITT TRIGGER LOGIC SYMBOLS	3	2	6	5	3	0	5
R1144	R3-01 IN YOUR PRESENT JOB DO YOU FABRICATE MULTICONDUCTOR CABLES	8	6	14	4	5	3	10
R1145	R3-02 DO YOU FABRICATE COAXIAL CABLES	4	3	8	2	5	0	5
S1146	S1-01 IN YOUR PRESENT JOB DO YOU PERFORM ANY TASKS ON VISUAL READOUT SYSTEMS	10	8	14	7	8	6	14
S1147	S1-02 DO YOU PERFORM ANY TASKS ON NIXIE LIGHTS OR NIXIE LIGHT DECODER SYSTEMS	2	1	3	0	5	0	5
S1148	S1-03 DO YOU ANALYZE NIXIE LIGHT DECODER SYSTEMS USING BOOLEAN ALGEBRA	2	1	3	0	5	0	5
S1149	S2-01 DO YOU WORK WITH PHOTO TUBES IN YOUR PRESENT JOB	55	55	61	68	35	42	57
S1150	S3-01 IN YOUR PRESENT JOB DO YOU WORK WITH CHOPPER CIRCUITS	6	5	8	9	5	0	5
S1151	S3-02 DO YOU MEASURE EXCITATION FREQUENCIES	1	1	0	0	5	0	0
S1152	S3-03 DO YOU MEASURE VOLTAGE-CURRENT PHASE RELATIONSHIPS	3	2	6	4	5	0	5
S1153	S3-04 DO YOU USE OR REFER TO EXCITATION FREQUENCIES	2	1	3	0	5	0	5
S1154	S3-05 DO YOU USE OR REFER TO VOLTAGE-CURRENT PHASE RELATIONSHIPS	4	3	6	5	5	0	5
S1155	S3-06 DO YOU USE SERVOS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	4	2	8	4	5	0	10

PHANTASTRONS

SCHMITT TRIGGERS

CABLE FABRICATION

INPUT/OUTPUT  
DEVICES

PHOTO SENSITIVE

DEVICES

SYNCHRONOUS

VIBRATIONS

(CHOPPER CIRCUITS)

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DT-TSK

SPC SPC SPC SPC SPC SPC SPC SPC  
003 007 008 009 010 011 012

51156	53-07	DO YOU USE DETECTORS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	3	2	3	4	5	0	5	
51157	53-08	DO YOU USE ERROR SIGNAL DEVICES IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	2	1	6	0	5	0	5	
51158	53-09	DO YOU USE COMPARISON CIRCUITS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	2	2	3	2	5	0	5	
11159	11-01	DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH INFRARED SYSTEMS	2	2	3	2	5	0	5	INFRARED
11160	11-02	DO YOU INSPECT INFRARED SYSTEMS	1	1	0	0	5	0	0	
11161	11-03	DO YOU CLEAN INFRARED SYSTEMS	1	1	0	0	5	0	0	
11162	11-04	DO YOU ADJUST OR CALIBRATE INFRARED SYSTEMS	1	1	0	0	5	0	0	
11163	11-05	DO YOU OPERATE INFRARED SYSTEMS	2	2	3	2	5	0	5	
11164	11-06	DO YOU TROUBLESHOOT WIRE CONNECTIONS OF INFRARED SYSTEMS	1	1	0	0	5	0	0	
11165	11-07	DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF INFRARED SYSTEMS	1	1	0	0	5	0	0	
11166	11-08	DO YOU TROUBLESHOOT DOWN TO INFRARED SYSTEM COMPONENT PARTS	1	1	0	0	5	0	0	
11167	11-09	DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF INFRARED SYSTEMS	1	0	0	0	3	0	0	
11168	11-10	DO YOU REMOVE OR REPLACE INFRARED SYSTEM COMPONENT PARTS	1	0	0	0	3	0	0	
11169	11-11	DO YOU USE OR REFER TO FAR REGION	1	1	0	2	3	0	0	
11170	11-12	DO YOU USE OR REFER TO INTERMEDIATE REGION	1	1	0	2	3	0	0	
11171	11-13	DO YOU USE OR REFER TO NEAR REGION	1	1	0	2	3	0	0	
11172	11-14	DO YOU USE OR REFER TO MICRON	1	0	0	0	3	0	0	
11173	11-15	DO YOU USE OR REFER TO GRAY BODIES	1	0	0	0	3	0	0	
11174	11-16	DO YOU USE OR REFER TO BLACK BODIES	1	0	0	0	3	0	0	
11175	11-17	DO YOU USE OR REFER TO ABSORPTION	1	0	0	0	3	0	0	
11176	11-18	DO YOU USE OR REFER TO SCATTERING	1	0	0	0	3	0	0	
11177	11-19	DO YOU USE OR REFER TO ABSOLUTE ZERO	1	0	0	0	3	0	0	
11178	11-20	DO YOU PERFORM TASKS ON BLITZ	1	0	0	0	3	0	0	
11179	11-21	DO YOU PERFORM TASKS ON TARGET BUTTONS	1	0	0	0	3	0	0	
11180	11-22	DO YOU PERFORM TASKS ON ERECTION LENSES	1	0	0	0	3	0	0	
11181	11-23	DO YOU PERFORM TASKS ON OCULAR LENSES	1	0	3	0	3	0	5	
11182	11-24	DO YOU PERFORM TASKS ON CORRECTION LENSES	1	0	3	0	3	0	5	
11183	11-25	DO YOU PERFORM TASKS ON FILTERS	1	0	3	0	3	0	5	
11184	11-26	DO YOU PERFORM TASKS ON SPHERICAL MIRRORS	1	0	3	0	3	0	5	
11185	11-27	DO YOU PERFORM TASKS ON PLANE MIRRORS	1	0	3	0	3	0	5	
11186	12-01	DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH LASERS	2	1	3	0	5	0	5	LASERS
11187	12-02	DO YOU INSPECT LASER SYSTEMS	2	0	6	0	3	0	10	
11188	12-03	DO YOU CLEAN LASER SYSTEMS	2	0	6	0	3	0	10	
11189	12-04	DO YOU OPERATE LASER SYSTEMS	2	0	6	0	3	0	10	
11190	12-05	DO YOU OPERATE LASER SYSTEMS	2	0	6	0	3	0	10	
11191	12-06	DO YOU TROUBLESHOOT WIRE CONNECTIONS OF LASER SYSTEMS	2	0	6	0	3	0	10	



TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMING

DY-TSK

	SPC 003	SPC 007	SPC U08	SPC 009	SPC 010	SPC 011	SPC 012
T1192 T2-07 00 YOU TROUBLESHOOT MAJOR ASSEMBLIES OF LASER SYSTEMS	2	0	6	0	3	0	10
T1193 T2-08 00 YOU TROUBLESHOOT TO COMPONENT PARTS OF LASER SYSTEMS	1	0	3	0	3	0	5
T1194 T2-09 00 YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF LASER SYSTEMS	2	0	6	0	3	0	10
T1195 T2-10 00 YOU REMOVE OR REPLACE COMPONENT PARTS OF LASER SYSTEMS	1	0	3	0	3	0	5
T1196 T2-11 00 YOU USE OR REFER TO ANGSTROMS (A)	2	0	6	0	3	0	10
T1197 T2-12 00 YOU USE OR REFER TO ELECTRON ENERGY LEVELS	1	0	3	0	3	0	5
T1198 T2-13 00 YOU USE OR REFER TO GROUND STATE	1	0	3	0	3	0	5
T1199 T2-14 00 YOU USE OR REFER TO EXCITED STATE	1	0	3	0	3	0	5
T1200 T2-15 00 YOU USE OR REFER TO PACKET OF RADIATION	1	0	3	0	3	0	5
T1201 T2-16 00 YOU USE OR REFER TO PHOTONS	1	0	3	0	3	0	5
T1202 T2-17 00 YOU USE OR REFER TO SPONTANEOUS EMISSION	1	0	3	0	3	0	5
T1203 T2-18 00 YOU USE OR REFER TO STIMULATED EMISSION	1	0	3	0	3	0	5
T1204 T2-19 00 YOU USE OR REFER TO COHERENCE OR INCOHERENCE	2	0	6	0	3	0	10
T1205 T2-20 00 YOU USE OR REFER TO INVERSION LEVEL	1	0	3	0	3	0	5
T1206 T2-21 00 YOU USE OR REFER TO MONOCHROMATIC	2	0	6	0	3	0	14
T1207 T2-22 00 YOU WORK WITH ACTIVE MATERIALS	2	0	6	0	3	0	10
T1208 T2-23 00 YOU WORK WITH PUMPING SOURCES	2	0	6	0	3	0	10
T1209 T2-24 00 YOU WORK WITH FULL SILVERED (100% REFLECTIVE) MIRRORS	1	0	3	0	3	0	5
T1210 T2-25 00 YOU WORK WITH HALF SILVERED (92% REFLECTIVE) MIRRORS	2	0	6	0	3	0	10
T1211 T2-26 00 YOU WORK WITH HELICAL FLASHTUBES	1	0	3	0	3	0	5
T1212 T2-27 00 YOU WORK WITH RUBY	1	0	0	0	3	0	0
T1213 T2-28 00 YOU WORK WITH HELIUM-NEON	1	0	3	0	3	0	5
T1214 T2-29 00 YOU WORK WITH HELIUM-XENON	1	0	0	0	3	0	0
T1215 T2-30 00 YOU WORK WITH XENON	1	0	3	0	3	0	5
T1216 T2-31 00 YOU WORK WITH CESIUM-HELIUM	1	0	0	0	3	0	0
T1217 T2-32 00 YOU WORK WITH ARGON	1	0	3	0	3	0	5
T1218 T2-33 00 YOU WORK WITH NEODYMIUM IN GLASS	1	0	3	0	3	0	5
T1219 T2-34 00 YOU WORK WITH GALLIUM ARSENIDE	1	0	0	0	3	0	0
T1220 T3-01 00 IN YOUR PRESENT JOB DO YOU WORK WITH DISPLAY TUBES, SUCH AS DIRECT VIEW STORAGE (DVST) OR MULTIPLE MODE	1	0	3	0	3	0	5
T1221 T3-02 00 DO YOU INSPECT DVST OR HMST	1	0	3	0	3	0	5
T1222 T3-03 00 DO YOU CLEAN DVST OR HMST	1	0	0	0	3	0	0
T1223 T3-04 00 DO YOU ADJUST OR CALIBRATE DVST OR HMST	1	0	0	0	3	0	0
T1224 T3-05 00 DO YOU OPERATE SYSTEMS THAT CONTAIN DVST OR HMST	1	0	3	0	3	0	5
T1225 T3-06 00 DO YOU TROUBLESHOOT DVST OR HMST CIRCUITS	1	0	0	0	3	0	0
T1226 T3-07 00 YOU REMOVE OR REPLACE DVST OR HMST TUBES FROM MAJOR ASSEMBLIES OR UNITS	1	0	3	0	3	0	5
T1227 T3-08 00 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF DVST	1	0	0	0	3	0	0

DISPLAY TUBES

TASK GROUP SUMMARY  
PERCENT MEMBERS PERFORMINGSPC SPC SPC SPC SPC SPC SPC SPC SPC SPC  
003 007 008 009 010 011 012

DY-TSK

T1228 T3-09 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME  
THE VARIOUS ELEMENTS OF NMST

T1229 T3-10 DO YOU PERFORM TASKS ON FLOOD GUNS

T1230 T3-11 DO YOU PERFORM TASKS ON WRITE GUNS

T1231 T3-12 DO YOU PERFORM TASKS ON ATTACK GUNS

T1232 T3-13 DO YOU PERFORM TASKS ON ERASE GUNS

T1233 T3-14 DO YOU PERFORM TASKS ON STORAGE GRIDS

U1234 U1-C1 IN YOUR PRESENT JOB, DO YOU PERFORM ANY PROGRAMMING  
TASKS

U1235 U1-02 DO YOU USE OR REFER TO DECIMAL SYSTEMS

U1236 U1-03 DO YOU USE OR REFER TO PROGRAMS

U1237 U1-04 DO YOU USE OR REFER TO HEXIDECIMAL SYSTEMS

U1238 U1-05 DO YOU USE OR REFER TO 8-4-2-1 SYSTEMS

U1239 U1-06 DO YOU USE OR REFER TO FOUR SYSTEMS

U1240 U1-07 DO YOU USE OR REFER TO BINARY SYSTEMS

U1241 U1-08 DO YOU USE OR REFER TO TIME-SHARING

U1242 U1-09 DO YOU USE OR REFER TO DATA WORDS

U1243 U1-10 DO YOU USE OR REFER TO ADDRESS WORDS

U1244 U1-11 DO YOU USE OR REFER TO ADDRESS/SURADDRESS

U1245 U1-12 DO YOU USE OR REFER TO STEERING/INFORMATION

U1246 U1-13 DO YOU USE OR REFER TO INFORMATION WORDS

U1247 U1-14 DO YOU PERFORM TASKS ON SINGLE LEVEL PROGRAMMING

U1248 U1-15 DO YOU PERFORM TASKS ON MULTI-LEVEL PROGRAMMING

U1249 U1-16 DO YOU PERFORM TASKS ON INPUT DEVICES

U1250 U1-17 DO YOU PERFORM TASKS ON STORAGE DEVICES

U1251 U1-18 DO YOU PERFORM TASKS ON ARITHMETIC SECTIONS

U1252 U1-19 DO YOU PERFORM TASKS ON CONTROL SECTIONS

U1253 U1-20 DO YOU PERFORM TASKS ON OUTPUT DEVICES

U1254 U1-21 DO YOU PERFORM TASKS ON POWER SUPPLIES

U1255 U2-01 DO YOU USE DECIBELS TO EXPRESS AMPLIFICATION AND  
ATTENUATIONU1256 U2-02 DO YOU USE LOGARITHMS TO COMPUTE OUTPUT POWER IN  
DECIBELSU1257 U2-03 DO YOU USE LOGARITHMS TO COMPUTE ATTENUATION IN  
DECIBELS

PROGRAMMING

DB AND POWER  
RATIOS